COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER AND R. DAWSON HALL, *Editors.*

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Setting Up a False Oracle

SENATOR FRELINGHUYSEN says that one purpose animating his legislative endeavors is to provide for someone in the government to whom people with questions about coal can turn for light. He, however, would have that "one" such a one as the Federal Trade Commission, to censor the business transactions of the industry, to be wholly concerned not with the advance of the industry but critical of its deeds and interested in the price of coal. His plan would evolve a Coal Trade Commission. What the industry and the country require is a Department of Mines, that will bring together under one roof all Federal activities on other mineral products as well as coal and that will be organized with the interest of aiding mining as Hoover would aid commerce.

A bill (S. 1957) has been introduced to do this very thing. Such a measure deserves the support of the coal industry. It would give us in workable form everything the coal people offered Senator Frelinghuysen—voluntary report and the inclusion of business other than coal—and would give the Senator the fountain head of wisdom in Washington, to which all with coal problems would turn. The Senator is credited with saying that any proposal looking to the creation of a new department has not the ghost of a show at this time. We suspect that the chance of success for his bill also is slim.

Working Cold Iron

THIS Frelinghuysen coal bill business is getting serious. Mr. Morrow has been obliged to postpone, if not cancel, his junket to Europe and Mr. Cushing is turning out memorials to Congress at a rate to burden the mails. Mr. McAuliffe announces that he stands sponsor for the authorship of the coal bills and Senator Frelinghuysen is surprised to find at the last minute that no one seems to agree with his ideas of what and how to do for the ills of coal.

We have read much on the subject of the problems that confront this country in these trying times, of the issues that remain for settlement by the present administration, but in all that we have seen we do not recall that stabilization of coal has been listed by competent authority as a pressing national problem. There was a tremendous outcry against coal last year, which came to a head in the hearings before Senators Calder and La Follette, and now there is a questioning by the public of the reasons for the high prices of anthracite and an oft-expressed belief that since everything else is supposed to be coming down in price, and hard coal is going the other way, there is something wrong with all coal men. Nevertheless, coal is now wholly an academic issue and not a national problem. Nothing but a wholly unexpected and unnecessary shortage and more very high prices can bring it forward into the spotlight again this year. Although jumping on the "coal barons" is still good "copy" for yellow newspapers and ambitious office seekers, the acute inflammation of last year is gone from public opinion and there is opportunity for sensible argument to defeat the avowed purpose of the Senator from New Jersey.

The coal men are pleading with Congress for a hearing on the "Coal Industry Stabilization Act," and they should have it. It would help if the principal witnesses were not coal men but consumers—common, everyday household consumers from all over the country—who should not be required to testify so much as they should be required to listen to the story of coal—the facts of the business. Last year two extended hearings were held on the same subject, and we very much prize the ten pounds and eleven ounces of printed record, comprising 4,595 pages in six volumes, resulting from those hearings. The greatest value to the coal industry from the outpouring of arguments and "memorials," from the protests and indignation letters of the coal men as well as from the speeches on the floors of Congress yet to come, will be the letting off of steam. There can be no peace and quiet until everyone gets this out of his system, and if another ten pounds—yes, even twenty pounds—of record must be accommodated on our bookshelves, we have no objection, but we trust it will soon be over. There are so many real things that the coal industry can do that are constructive that fighting hostile legislation becomes to many an exceeding irritation. The mine workers object that attendance of the operators at so many hearings at Washington is interfering with the proper dispatch of business with them at the mines.

For instance, there is that question of better merchandising which Mr. Cushing has been going to study for the past few years. There is the almost undeveloped field of public relations—getting next to the consumer with a story that he can understand, not telling it once but every day and week until it is understood. There is the problem of promoting a real foreign trade in coal, which the foreign trade committee of the National Coal Association expected Mr. Morrow to study abroad this summer. There also is a big labor problem looming up. But again these things must wait while everyone bends his efforts toward turning aside those who would help the coal industry by regulation.

Because one ton out of every six goes into people's cellars and the bill puts a dent in their bank account, coal is dangerously near being a public utility. And because half the coal that people actually see used is anthracite, and because anthracite is so costly to produce and procure, more than half the trouble between the public and coal is trouble with conditions in the anthracite industry, conditions that legislation cannot cure because they are economic and not political.

Senator Frelinghuysen became interested in coal two years ago because his constituents in New Jersey were

concerned over their local supply. He still is following the subject because these same people are not satisfied with the price they must pay for what they put in their cellars. In his study he has found many things about the whole coal industry that might well be different. It is easy to find these problems. It is difficult to prescribe remedies. One of the missing links is sufficient data on many aspects of coal. The Senator made this discovery early in his investigations, and it has been the *motif* of his proposed legislation since. That he has been converted to regulation to obtain these data is but a sign that he has tackled the problem as a legislator and not as a business man. He is seeking support for his plan by promising something to the citizenry of New Jersey that his and no other legislation can fulfill. Furthermore, he is making the attempt to mold public opinion on a subject on which it is now not hot but barely warm.

A Full Shovel Load and Full Speed Ahead

TOO emphatic has been the complaint about the morale of the day workers in the mine. The fact is that there is less complaint to be brought against these men than against the majority of unwatched and therefore unfearful men in any other line of industry. An inquirer into social conditions, Whiting Williams, who worked to gain his experience at steel works and coal mines, was inclined to the belief that he never seen unhectored day workers so active and anxious to accomplish their work as those in the mines. One reason for this is that the coal mines are cool. In them one must work briskly to keep warm. The air is exhilarating mentally and physically.

However, officials around the mine are quite apt to make a different report as to the efficiency attained. If the instances adduced were inquired into, it probably would be found that when a worker underground had been pulled out of his regular working place and set to unload rock somewhere under the blazing sun, it had been ordered much against his will, but in accord with the union agreement. Accustomed to work at an even temperature of 55 deg. he probably wilted under the glare of 85 or even 100 deg. Besides he smarted under the fact that he was "the goat." There were perhaps 400 miners in the mine, and when one man quit work for some improper reason—to go hunting or fishing perhaps—the lot, or rather the selection, of the foreman had fallen on this one wretched wight. He felt that the less he did the less likely he was to be broiled again on that blazing rock heap.

However, there is a cure for the slackness of the dayman, and that is to have him run a machine or drive an animal. Every motorman sets his controller to the last notch. If not a careful worker he will speed up the motor without any regard for the length of its life and he will continue to try to run it when it should be in the repair shop. The driver of a mule is as impatient to get to the entry as are a farmer and his wife to get to the market. A perpetual "Get up" and frequent flicks of the whip mark his passage up the roadway and he risks his life in his attempts to open a door, to find and set a sprag, or to throw a switch without stopping the trip.

The engineer runs his engine at the speed for which the governor is set. He does not try to modify the setting of the fly balls so that it will go any slower than it should. He has no interest in lowering the output of energy, and he does not attempt it. So also, the elevator boy is always ready to run his cage up and down the elevator shaft. It is a matter of no importance to him how many trips he makes daily. In fact so anxious is he to get down or up, as the case may be, that it is necessary to make rules requiring him to wait until he has more than one passenger or until the other elevator boy, when two are employed, is going in the opposite direction to himself.

And so it goes wherever the machinery installed relieves labor of most of its burden. The speed attained is the speed of the machine; the capacity is its capacity. "A full shovel load and full speed ahead" is ever the motto when there is complete mechanization.

Chauffeurs were arrested for speeding during the war, though everyone was anxious to obtain maximum output. The arrests occurred because the work of running an automobile was so exhilarating and easy that it was indulged in to excess. This shows how men must at all times be restrained from making machines under their charge do an amount of work that is dangerous to others and in other cases to the machine or to the operative. Speed mania is a disease that may be counted on to develop when the leucocyte of hard labor which preys on it is destroyed.

Because the miners oppose a new scale where new labor-saving machinery is introduced our mines need day labor to make complete mechanization pay, and complete mechanization is needed to make day labor economically possible.

Conserving Coal, Wasting Labor

THE room-and-pillar system when it is so planned as to obtain large recovery, as in the Connellsville system of mining under heavy cover, involves an unusual proportion of narrow work both in driving the rooms and drawing the pillars, the ribs being removed by cutting long narrow places through them, crosscutting the pillars thus formed and whittling away the resulting stumps as far as possible. There is little wide mining either in rooms or ribs. Furthermore, as the line of break in the high-recovery mines is at about 45 deg. to the entry and the line of the room faces is on the same inclination, the number of places working at any one time is small. There is no concentration of work. In the Connellsville system the rooms are few, long, far apart, normally not productive of large tonnage and driven only on one side of the heading. Consequently an entry, when pillars are being drawn, is not a lively place and when it is being driven or the rooms are just starting it is extremely lacking in activity. No wonder its gathering costs are excessive and that the storage-battery locomotives, profitable elsewhere, are less profitable in mines such as these.

After all is said, is the Connellsville plan of leisurely development the end to aim at? Are there not methods as conservational or more conservational that are not so expensive in operation and so ill-adapted to the saving of labor? It is worth while inquiring whether some substitute cannot be found that will give to the face a rotational delivery of full trips instead of a shuttle service of individual cars; that will recover the face not by cross-cutting and pillar-whittling methods but by longwall and that will reduce narrow work to a minimum. The concentration system in use in the Pittsburgh district is an improvement but it leaves much narrow work, it gives short pillar faces and it does not enable unbroken trips to be placed at the face.

TIPPLE OF DIAMOND MINES, OF IMPERIAL COAL CORPORATION, JOHNSTOWN, PA. COAL LIES AT TIPPLE LEVEL

Among Other Preparation Devices at Diamond Mines Is One for Picking Each Car Separately

Cars Brought to Feeder by Rope Are Fed to Dump Which Revolves Completely Over, the Cars Being Held by Wheel Clamps—Reciprocating Screens Hang from Rods and Do Not Rest on Rollers

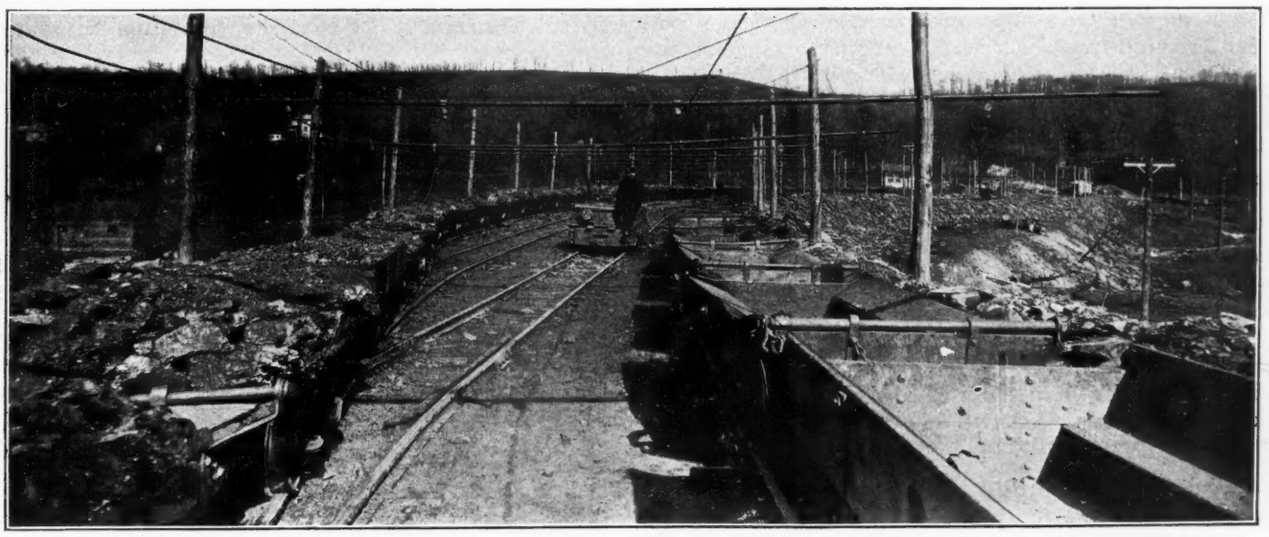
BY DONALD J. BAKER
Wilkinsburg, Pa.

AT THE Diamond Mines of the Imperial Coal Corporation of Johnstown, Pa., has been completed recently one of the best equipped preparator buildings to be found anywhere in the bituminous fields. This structure was built when coal was commanding its highest prices and when the owners could easily have erected a rough tipple and taken advantage of existing conditions. They preferred, however, to build one that would give a product which always will be salable.

The Diamond Mines operate, on a royalty basis, some 2,500 acres of the "Miller" bed of coal located at Boltz, near Seward, on the main line of the Pennsylvania R.R. This measure will perhaps average 46 in. in thickness throughout the tract. Although the company has constructed a surface plant that will bear favorable comparison with those of the newer operations of the Pittsburgh district, it is not the purpose of this article to describe the surface works in general.

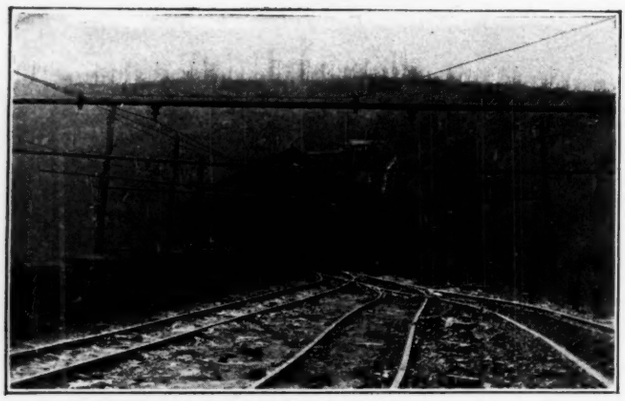
Only the tipple will be detailed, as it is in this building that greatest interest in this operation centers, many innovations in coal handling having been introduced in its construction which clearly discountenance the belief that tipple design and equipment are now largely standardized. Though the tipple differs little in external appearance from others of the state, the means and methods employed in preparation are markedly dissimilar from those ordinarily followed.

The acreage at the Diamond Mines is being developed through two drift openings, the coal bed outcropping along a hillside fronting on the Conemaugh River.



YARDS ABOVE TIPPLE WHERE CARS ARE LEFT BY LOCOMOTIVE AND PULLED BY ROPE TO TRIP FEEDER

The locomotive, after drawing its load toward the tipple, switches to another track. At most drift tipples it then runs back to a switch in the rear of its trip, where it transfers to the track on which the trip stands. From this point of vantage it bumps the cars into the tipple. At the Diamond Mines another plan has been chosen. A rope is used for pulling the trip to the feeder. This makes it possible for the locomotive to go about its business as soon it delivers its trip to a point near the tipple.



APPROACH TO TIPPLE IS CURVED AT SHARP ANGLE

That curvature, however, does not prevent the use of a trip feeder, as the latter is less than 13 ft. long. The front cars only are pulled but those behind move up also, for they are coupled to the cars in front.

Development plans call for the opening of other drifts in the near future to serve as additional feeders to the tipple. Trolley-type locomotives bring loaded trips exceeding fifty cars each into a spacious storage yard. The motors haul their trips almost to the tipple before cutting loose and proceeding into a switching track lying parallel with the tracks for loads.

Trip Feeder at Head of Tipple Building

At the head of the tipple and in the floor of the building, a car-haul—termed a trip-feeder—has been installed for moving the entire trip forward, one load at a time, into the preparator. This mechanism is placed on a 0.6 per cent adverse grade, and the cars when clear of the moving dogs gravitate into the building, to be weighed and dumped. The trip-feeder is electrically driven and operates at a speed of three cars (equivalent to a chain movement of 35 ft.) per minute. The average weight of the loads is approximately 4,200 lb. The carhaul is 12 ft. 8 in. long from center to center of sprockets and is built up of 2¼ x ⅝-in. bars set in pairs connected by steel pins 1 in. in diameter. Heavy forged-steel hooks, acting as dogs, are set in the chain at 10-ft. 8-in. intervals to engage the attachments on the bottom of the cars.

In some of the older cars at this mine, which have been removed from other operations of the same company where there was a surplus of such equipment, the car axle is the point of attachment. On the new solid-body cars, however, a special plate has been affixed to the bed. The head-sprocket shaft is 3 15/16 in. in diameter and the tail shaft is 2 7/16 in. in diameter. Both are equipped with standard adjustable boxes.

The trip-feeding mechanism is driven by a 10-hp. motor through one belt, one cut steel spur-gear reduction and a roller-chain transmission. The driving pulley is fitted with a 14-in. friction clutch which is operated through a system of levers from the head end of the feeder. A man is detailed to the feeder to uncouple the cars in the trip as each comes over the knuckle at the head sprocket. The control lever accordingly is located conveniently near this point.

Cars Pulled by Rope to Trip Feeder

The upper strand of the chain runs in a steel-channel guide and the return strand on a steel-angle track. Structural supports are provided for the head and tail shafts. When the locomotive cuts loose from its string of loads at the tipple entrance the first car is out of reach of the feeder. Some scheme had to be devised, therefore, wherewith to move the entire trip forward so that the initial car might be engaged. This must be done without requiring the locomotive to push the trip from the rear, such a method being considered too prodigal of time. A straight-face drum 26 in. in diameter and 10 in. wide was installed on the feeder head shaft and connected to it by means of a jaw clutch. This drum is equipped with 300 ft. of wire rope.

After the locomotive has cut loose at the tipple entrance the attendant at the feeder attaches the rope to the first car of the trip. The drum is then revolved, and the entire trip is moved forward until the front car is in such a position over the feeder that the dogs will engage it. The rope is then removed and the feeder placed in operation. As each load clears the head sprocket it moves forward and onto the scales, where it is weighed while in transit to the dump.

Cars Emptied by Full-Revolving Dump

Fairbanks platform scales of five-ton capacity are located on the main tipple floor between the trip feeder and the dump. These are equipped with a quick-weighing and reading dial. The weigh room is so designed as to afford a full view of the approach to the scales. Its floor dimensions are 10 x 9 ft. Ordinarily only the gross weight of each car is recorded but sometimes the net weight also is desired, as will be shown later.

From the scales the loads gravitate to the dumping mechanism, which is of the full-revolving type. A pair of horns over the track at the forward end of the dump deny the loads entrance until a lever has been thrown by the operator, which forces these obstructions to the sides of the rails. This revolving dump is built of two heavy steel circles or tires connected by tie beams and stiffened by diagonal braces. Each tire is supported on two 16-in. diameter single-flange traction wheels mounted upon cold-rolled steel axles, the wheels themselves being of chilled cast iron. At the end of the dump two thrust rollers of the same material as the wheels are provided. This dump is operated by a 10-hp. motor of the open type, connection being made through a cut-steel spur-gear reduction to a shaft on which is fitted a steel pinion that meshes with a cast segmented gear encircling the dump at the receiving end. All driving machinery is installed on a steel bed plate. Throughout its complete revolution the dump

AT PRESENT COAL COMES FROM TWO DRIFT MOUTHS

Another drift is to be opened later. The coal outcrops along a hillside fronting on the Conemaugh River. The track on the extreme left leads to drift No. 2, from which trips are backed into the loaded tracks leading to the tipple. Two different trips are thus coupled together for removal to the trip feeder.

Picking Tables

The output is not large enough to make it necessary to use both tables. For this reason the one in the rear is not being used. When both are in use a 9-ft. space separates each carload, and it is possible, therefore, to weigh the refuse from each car separately, the record being given on the scale in the rear. By the use of skylights of ribbed wire-glass the pickers have no difficulty in distinguishing the impurities in the coal.

is governed by means of an automatic electrical control, rotation being started by a push button placed near the operator. The dump is gradually brought to rest at the end of each revolution without attention on the part of the driver other than the initial pushing of the control button. This arrangement is infinitely more conducive to time saving than where the operator has many levers and brakes to operate and must "jiggle" for position at the end of each revolution. Once started the dump completes its movement and comes to rest with the empty car in position to gravitate out at the opposite end.

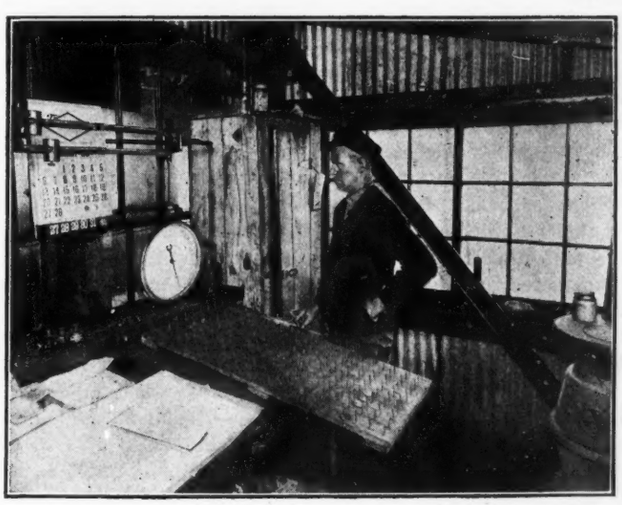
Horns Embracing Wheels Hold Inverted Car

Within the dump mechanism spring-seated car stops are installed. These are connected by levers to a track treadle located at the dump entrance, the arrangement being such that a car entering the machine will trip the horns and force the empty out at the opposite side. The car-stops, which function as horns, are so curved as to fit around the tread of the car wheels. When a car is upside down it is held in position by the horns alone. Only two men besides the weighmaster are required on the main tipple floor—one to operate the dump and the other to control the movement of the trip-feeder and trip-maker.

After discharge, the empty car runs by gravity to a kickback in the rear of the tipple, and is thence directed into a track leading to the outside of the building. Here the cars pass into another car-haul, termed in this instance a trip-maker. This is capable of forming a trip of fifty empty cars on a 0.6 per cent adverse grade. It runs at a speed of 60 ft. per minute, and the average weight of each car is approximately 1,700 lb. This car-haul is 44 ft. long—center to center of sprockets—and, like that in the trip feeder, consists of one strand of 8-in. pitch steel-link chain in which heavy forged-steel hooks have been inserted.

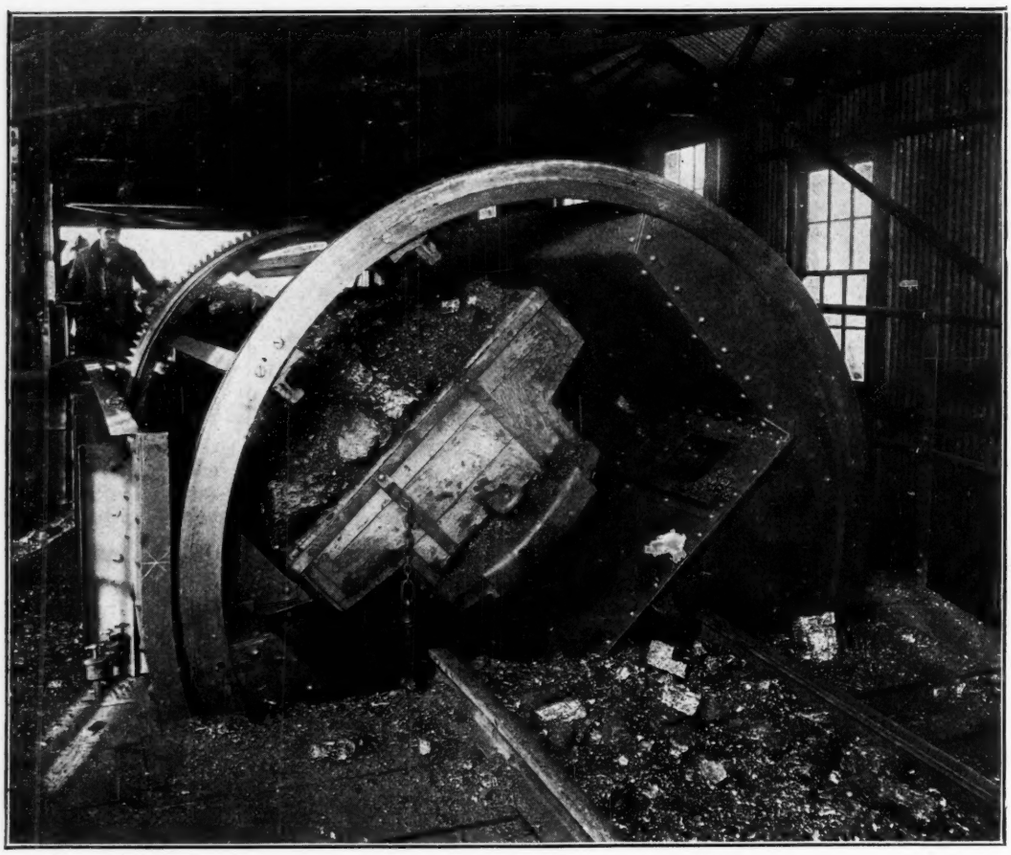
These hooks are placed on 5-ft. 4-in. centers to engage the attachments on the bottoms of the cars. The chain is composed of $2\frac{1}{4}$ x $\frac{5}{8}$-in. links set in pairs and connected by steel pins 1 in. in diameter. The pin at one end of each hook link is extended and fitted with two steel rollers. Each end of the pin is threaded and equipped with a nut held in place by a cotter that extends through both nut and axle. All other pins are riveted. The head and tail sprockets are of the same size as those of the trip-feeder.

A noiseless safety device has been installed on the head shaft of the trip-maker to prevent the weight of the cars on the grade from running the haul backward should the power suddenly be shut off. This consists of a ratchet fitted with a pawl held out of engagement



IN THE WEIGH ROOM ON THE MAIN FLOOR

A platform scale records the gross weight of each car on a quick weighing and reading dial. If the net weight of the load is desired, the weight of the pickings is forwarded from the picking room. Recording the amount of impurity in each car is a new wrinkle in mine management and it enables the operator to weed out the undesirables at his plant.



Dumper Holds Car by Wheels

In dumping the car is completely reversed, but most of the coal falls out long before the complete reversal takes place. The dump makes a continuous movement of 360 deg. and not merely a rocking motion through part of a revolution and back again. One push of the button suffices to overturn the car and right it.

with its teeth by means of an adjustable friction block. To minimize the danger of damage to the mechanism as a result of backing a locomotive at too great speed into the trip out in the yard the head shaft has been made extra heavy. The top strand of the chain runs in a steel cageway composed of a bottom channel with hold-down angles. The return strand moves in a track made of two angles with structural brackets supporting it from the ties. To prevent empty cars from dropping back and damaging the chain hooks, a series of pivoted dogs have been installed at the tail end of the trip-maker.

Coal Fed to Screens by Feeder

Upon discharge from the mine car the coal passes into a receiving pan. This is made of ¼-in. plates and is fitted with flaring side guards to prevent spillage. The bottom of the pan is equipped with a two-compartment feeder, controlling delivery of the mine product to the screens. A vertical flygate has been installed in the pan ahead of the feeder to permit delivering cars of coal alternately to the two compartments. This gate is operated by an air cylinder, the control valve of which is moved through a lever attachment to the dump on the main tipple floor. The dump attendant operates this lever and thus distributes the coal to the screens.

The feeder is of the steel apron type and is 17 ft. long, center to center of sprockets. It consist of three strands of 4-in. pitch steel-thimble roller chain to which are fastened ¼-in. double-beaded pressed-steel pans, each 6 ft. 6 in. in length, the whole forming a continuous conveying table. The head and tail shafts are of the same size as those upon the car-moving mechanisms already described. The feeder is driven from an eccentric shaft servi[illegible] the shaker screens, transmission being made through a thimble-roller chain and a single spur-gear reduction. The driving sprockets are keyed onto the hub of the driving pulley on the shaft of the screen so that the feeder may be operated independently when it is desired to load emergency run-of-mine coal.

The feeder is self-contained and carried on a heavy structural-steel frame having ⅜-in. side and partition plates, the latter dividing the feeder into two equal compartments. A ⅛-in. plate pan is suspended beneath the return strand of the feeder to collect any dust that may adhere after the coal is discharged. A chute leads from the feeder to the screens. This is built up of ⅜-in. side and ¼-in. bottom plates. It is equipped with a counterweighted flygate so that it is possible to bypass run-of-mine coal to a chute by means of which cars on track No. 1 may be loaded. The discharge end of the chute is hinged and counterweighted so that it can be raised into the clear when the track over which it is suspended is not being utilized for loading. In this respect the chute is not dissimilar to a loading boom.

Screens Hang From Beams by Adjustable Rods

From the feeder the coal passes directly to the screening rig, which consists of a shaking lump screen, a shaking nut screen, and a slack pan. Each of these three units is divided by a partition into two compartments, one serving each picking table. The lump and nut screens are each 6 ft. wide and 16 ft. long, each compartment thus having a screening area of 48 sq.ft. The screens are supported from the tipple framework by means of adjustable hanger rods. This method of suspension increases the life of the equipment and effects a saving in power consumption by avoiding excessive flange friction that commonly is encountered where the screens are supported on roller mountings. Each hanger rod is equipped with a removable cast-iron bearing box at its extremity, these bearings being

fitted with grease cups, allowing easy application of lubricant.

Both screens and slack pan are built up of $\frac{3}{16}$-in. side and $\frac{1}{4}$-in. bottom plates. The lump screen is provided with perforations $3\frac{1}{2}$ in. in diameter, and the nut screen is made of stepped plate having $1\frac{3}{8}$ x $1\frac{5}{8}$-in. perforations. Both screen plates are made in removable sections. Thus other sizes of coal may be prepared if desired, or solid sections substituted for loading run-of-mine coal over the screens and delivering to a car by way of the loading boom.

Driving Pulley Functions as Fly-Wheel

The screens are given a reciprocating motion by a 25-hp. motor through a single belt transmission to the eccentric shaft. The sections are balanced against each other so as to reduce vibration. The driving pulley is heavy and functions as a flywheel. It is connected to the eccentric shaft through an 18-in. friction clutch. This arrangement provides for disconnection when it is desired to operate the apron feeder independently of the screens, as already has been mentioned in describing the operation of the feeder.

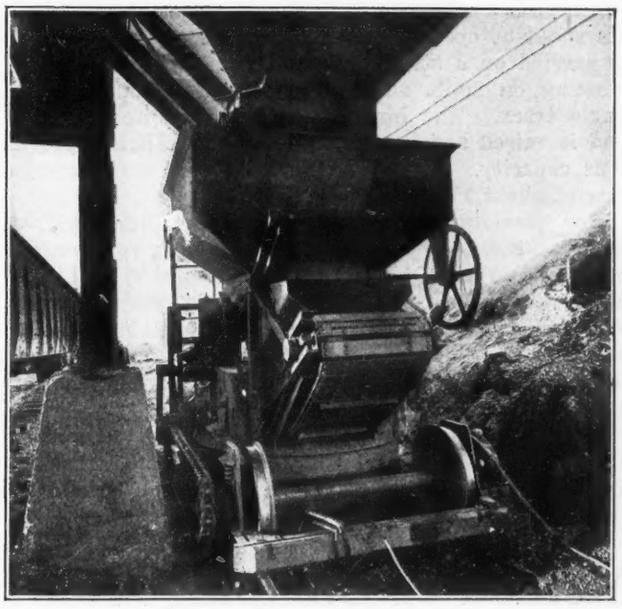
From the screens the coal passes to the picking tables, which are two in number and duplicates in construction. These are of the "doughnut" type. Each is 20 ft. in outside and 10 ft. in inside diameter. They are built up of heavy steel rail bent to a circle and supporting a circular steel frame, upon which is carried a $\frac{1}{4}$-in. removable cover plate in sections. Each table is provided with a partition which separates the transporting bed into two compartments. Stationary guard angles are placed upon either side of the tables.

Each Car of Coal Can Be Picked Separately

Eight cast-iron pedestals support each table, each equipped with a 12-in. diameter single-flange cast-iron roller, bronze-bushed on a steel axle. These tables are driven by a 25-hp. motor, transmission being made through a line shaft and suitable bevel- and spur-gear reductions. The master wheel is a segmented cast-iron ring secured to the under side of the table. A thrust roller is installed to maintain alignment between the driving pinion and this gear. The driving bevels on the line shaft are equipped with jaw clutches so that either table may be operated independently of the other when desired. The speed of each table is about 50 ft. per minute at its center line or mean diameter. When sufficient orders are on hand to warrant the operation of both tables, the dump attendant on the main tipple floor sends cars of coal to each alternately. Thus when the preparator is working to capacity a space of about 9 ft. separates each car load from that next dumped upon each table, thereby making it possible to pick every loader's car of coal individually.

Beneath each table and resting on the floor is a circular trough. Refuse extracted from either the lump or nut divisions is tossed into chutes which lead to this trough. Here this extraneous material is picked up by bracket scrapers suspended from the under side of the moving bed plate. Chutes for delivering the refuse from the troughs under the tables to bins are built up of $\frac{1}{4}$-in. bottom and $\frac{3}{16}$-in. side plates.

Each chute is suspended from a $1\frac{1}{2}$-ton capacity scale provided with a quick-weighing dial bearing bold figures so as to permit easy reading by the picking boss stationed near the end of the screens. Each chute is equipped with a "chop" type of gate to hold the refuse during the weighing operation, and a flygate is provided between the chop gate and the refuse bin so that the rock from any individual car of coal may be drawn into a receptacle for the loader's inspection. By subtracting the refuse weight from the coal weight of the car, as determined by the weighmaster, the net weight of each carload can be computed. This is seldom done, however.



ELECTRIC SLATE LARRY UNDER ROCK-AND-REFUSE BIN
Refuse is carried in a hopper which revolves on a turntable. A small conveyor carries the rock wherever it may be needed.

When the percentage of refuse in a car is high, this material is saved for the miner's inspection at the end of the day. If a man persists in loading dirty coal after having been cautioned repeatedly, he is allowed to seek employment elsewhere. This is a detail of construction and operation that is decidedly new, but doubtless one that ultimately all operators will adopt, as it provides an excellent check upon a careless or unskilled workman.

Ease of Inspection Reduces Dirt in Coal

Heretofore the loading of dirty coal has meant extra work for the men employed at the picking tables. It was impossible to know which were the good and which were the careless loaders within the mine. Now, even though the men are seldom checked, they realize that the equipment for so doing is at hand, and consequently they do not risk the loading of a car with a large amount of rock. The refuse-weighing apparatus serves its purpose quite as effectively as if it were being used upon each car. The nut and lump sizes are picked simultaneously by men stationed along both the inner and outer edges of the tables.

After passing over the tables the lump sizes are united on one loading boom for delivery into railroad cars beneath. This boom is 45 ft. 6 in. in length, the hinged section being 21 ft. 6 in. long. It is built up of two strands of 9-in. pitch chain supported by $3\frac{1}{2}$-in. rollers. Double-beaded pressed-steel pans 36 in. long are attached to the chain so as to form a continuous conveying surface. The inner bars of each chain are extended so as to form sides to the pans.

This device is driven from the picking-table line shaft through a roller chain transmission, the driv-

ing sprocket of which is equipped with a jaw clutch. Its speed of operation is about 75 ft. per minute. It is carried on a structural-steel frame, the top strand running on 20-lb. rail and the return strand on an angle track. The hinged section is counterweighted and is raised and lowered by an electric hoist of two tons capacity. It may be moved up or down at the rate of about 17 ft. per minute.

For receiving rock and refuse from the picking tables a three-compartment bin has been constructed below and to one side of the picking room. This bin is fitted with a chop type of gate that is operated from the track beneath. All refuse and rock is loaded into an electric trolley-type of slate larry and removed some distance from the preparator before being dumped as filling material.

The tipple equipment has a capacity of 225 net or 200 gross tons per hour. As will have been noted, arrangements for loading are such that delivery into railroad cars can be accomplished in a variety of ways and in various combinations, as follows: On the No. 1 track (under the loading boom), lump, lump and nut, lump and slack, picked run-of-mine or emergency run-of-mine; on the No. 2 track, nut, slack, or slack and nut. By means of a flygate and chute the picked lump coal from both tables may be bypassed to cars on track No. 2. The picked nut sizes from both tables may be delivered to a chute for loading cars on track No. 2, or through a flygate and chute, may be sent with the lump over the loading boom to cars on track No. 1. The slack coal may be loaded through a chute into cars on track No. 2, or bypassed through a flygate and chute with the nut sizes to the loading boom over track No. 1. The loading equipment is highly flexible and allows for a wide range in combinations of sizes. The building and the apparatus contained within it were designed, fabricated and installed by the Heyl & Patterson Co., of Pittsburgh, Pa.

Method of Dumping Mine Rock by a Self-Tripping and Self-Closing Bucket Traveling on a Ropeway

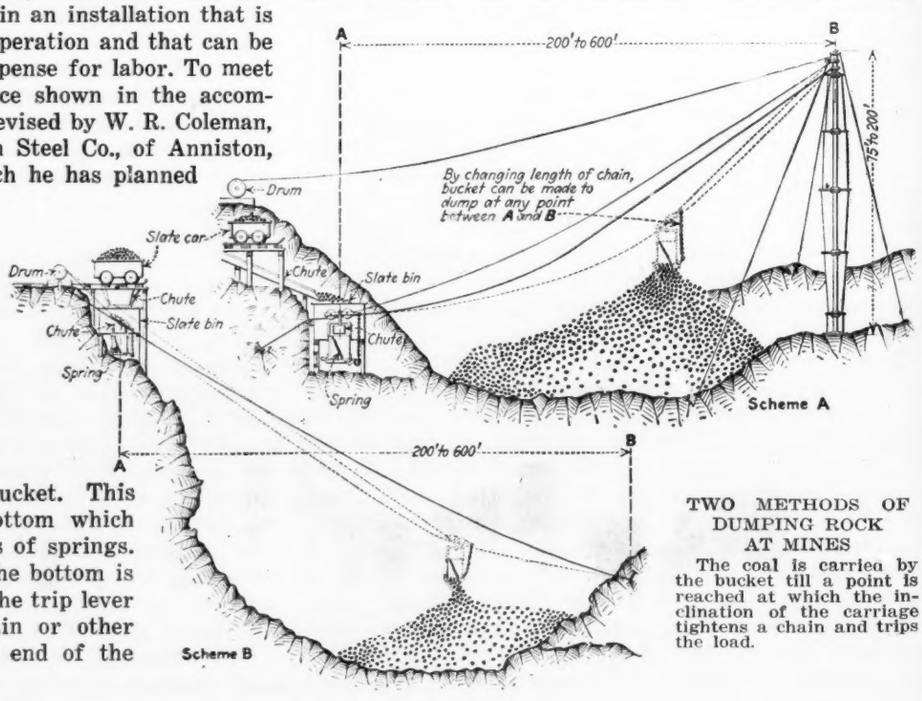
By Raising a Derrick or Tightening the Rope the Catenary Curve of the Latter May Be So Arranged That the Rock Is Automatically Dumped at Any Level or Place Desired

SLATE disposal is no small problem at some coal plants, many having been the schemes devised and put into practice to accomplish the desired result. Among the more common of these is the use of mine cars, aerial tramways, special slate cars and larries, while in some instances, where operations are large and the quantity of material to be moved is excessive, standard-gage side-dump cars are employed. Dragline scrapers also have been used with success.

With most mines, especially where the quantities of slate to be dumped are of only moderate size, the primary desideratum is to obtain an installation that is cheap in first cost, reliable in operation and that can be handled with a minimum of expense for labor. To meet these conditions the contrivance shown in the accompanying illustration has been devised by W. R. Coleman, chief engineer of the Anniston Steel Co., of Anniston, Ala. Although the device which he has planned might be termed an aerial tramway, it differs radically from such arrangements as are usually installed, as the dumping operation depends solely upon the inclination of the supporting or track rope. Referring to Scheme A, slate is dumped from the mine car into a chute or hopper, from which it is drawn into the disposal bucket. This is provided with a hinged bottom which when empty is closed by means of springs. When in position for loading the bottom is held shut by a weighted latch, the trip lever of which is connected by chain or other flexible means to the forward end of the supporting traveler.

When loaded, the bucket is hauled out upon a track cable which extends from the slate bin to the top of a suitable tower. The height of this tower as well as its distance from the point of loading is made to suit conditions, both being variable through wide limits. For practical reasons the span should not exceed about 600 ft., while the height of the tower will seldom be more than 200 ft.

When unloaded the track cable hangs in a smooth catenary curve. The load on it, however, changes its slope radically and the less initial tension upon it the



TWO METHODS OF DUMPING ROCK AT MINES

The coal is carried by the bucket till a point is reached at which the inclination of the carriage tightens a chain and trips the load.

greater will be the difference in grade in front of and behind the load. As may be seen, the traveler supporting the bucket is provided with two pulleys, the hanger being pivoted between them. This traveler accordingly takes the inclination of the track rope while the hanger remains vertical. As has been stated, the latch of the bucket is connected to the forward end of the traveler by means of a chain. As the inclination of the traveler increases, the chain first becomes taut, then trips the bottom, allowing the contents of the bucket to be discharged, whereupon the springs return the bottom to its closed position, where it is again latched as soon as the bucket is lowered to a more nearly level track cable.

Scheme B shows a modification of this device or, rather, how it may be adapted to transporting slate from a higher to a lower elevation. In this case a highly-tilted traveler permits the latch to remain closed, while a level or more nearly level position trips it. Regardless of whether Scheme A or B is followed, the point along the track rope where discharge will take place is governed by the length of chain between traveler and latch.

It will be at once appreciated that this apparatus is simple and comparatively inexpensive. In many instances the traveler track may be old hoisting cable from the shaft. If the loads to be handled are excessive, twin track cables may be installed. The chief advantage of the whole scheme, however, lies in its simplicity, ease of operation and reliability. All parts may, moreover, be built cheaply yet of ample strength.

Large Dump Cars for Use in the Absolute-Removal System of Stripping Overburden from Coal

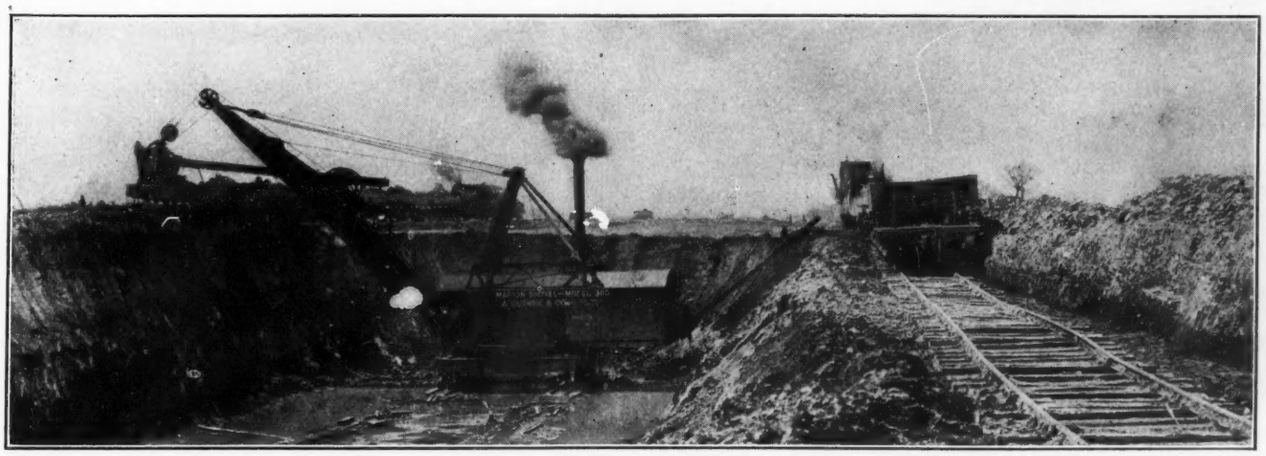
Will Carry Rocks Up to 18 Tons Weight—Gives 5 Ft. Clearance for Dumping—Will Hold 43 Cu. Yd. of Material and Discharge Running or Standing and Right or Left

YEAR by year the stripping of coal, where this process of mining is possible, becomes more and more popular. This process of mining has many advantages over underground methods, not the least of which is the greater safety gained. Starting from a small beginning with hand shovels and wheelbarrows the equipment employed has steadily increased in size as have the strip pits until today the world's largest steam shovels are used in this industry.

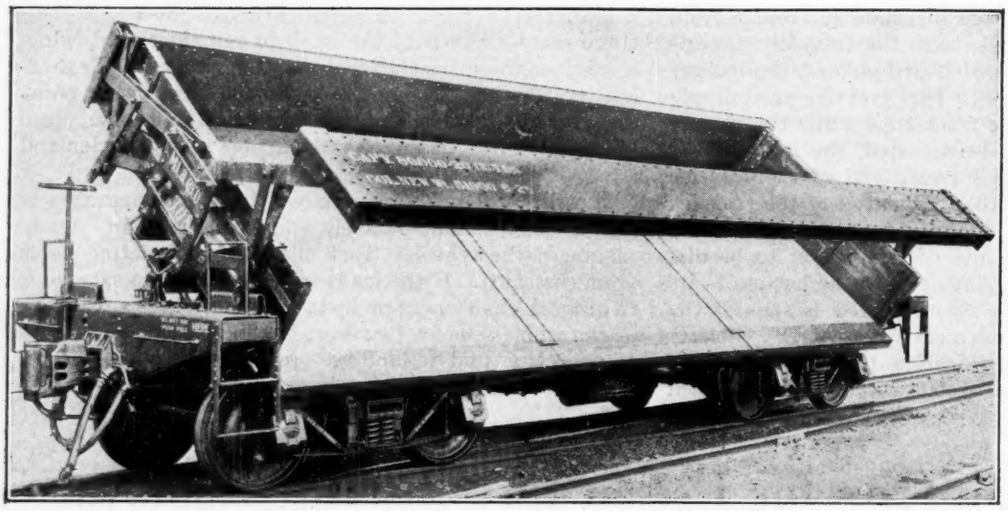
Two general methods of operation are used in handling overburden above coal beds—the casting and the absolute removal. The casting method, as its name implies, consists in moving earth by steam or electric shovel or dragline excavator only. In the absolute-removal method excavated material is loaded onto cars and hauled away to a spoil bank at some distance. The former is available in general where the coal bed is level and cover does not exceed more than about 40 ft.; the latter where the coal bed is contorted and the removal of overburden can be accomplished only in two or more lifts. This is the procedure rendered necessary by conditions existing throughout the anthracite region.

Unfortunately earth moving has been, or at least was, considered, when coal stripping began, to be a contractor's job, and as such one demanding contractors' equipment. This was in most cases small and as a rule has so remained, and in fact in most regions the contractors engaged in this work have not begun to show the same enterprise as has been exhibited by railroad builders. In most strip pits now employing spoil cars, for instance, these cars are of narrow gage and comparatively small—that is, one to two cubic yards capacity. Thus a giant job is attempted with a pigmy tool.

Utilization of equipment more nearly commensurate with the work in hand, however, is rapidly gaining favor. Many of the coal companies as well as the stripping contractors have seen the advantage derived from using large units. Nowhere is this advantage more potent than in the cars employed in spoil transportation. In order to be effective in this service a car must be flexible, reasonably light in comparison to the load it will carry, must be sufficiently rugged to withstand successfully the neglect, abuse and general punishment to



LOADING SPOIL INTO TRAIN OF DUMP CARS STANDING ON THE BANK OF A THIRTY-FIVE FOOT EXCAVATION



Dump Car

Weighs empty slightly under twenty-six tons. Rated capacity forty tons or 20 cu.yd. Operated by air it has such reserve power that when any material lodges, the car may be righted and tipped till the obstruction is freed.

which it inevitably will be subjected, but above all it must be capable of being quickly discharged without the expenditure of any great amount of manual labor.

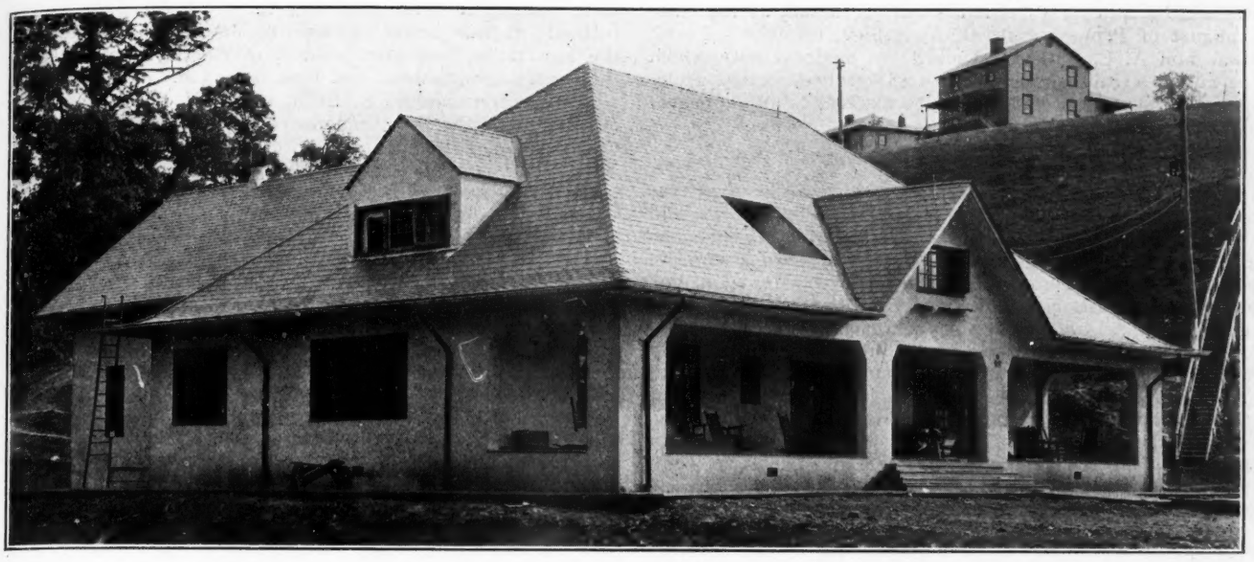
Standard-gage side-dump cars when properly constructed fulfill the requirements above enumerated admirably. As built by the Kilbourne & Jacobs Mfg. Co., of Columbus, Ohio, one of the oldest builders of this type of equipment, such a car is fitted with side boards which upon dumping are raised to such a height as will permit the discharge of material of any size that can be loaded upon the platform. Discharge is effected by means of air cylinders that draw air from a supply reservoir upon each car. This relieves the tank on the engine of this burden and renders possible the simultaneous discharge of several cars or a complete trip when the train is standing still or moving rapidly forward.

Discharge of the trip may be controlled from the locomotive or from any desired car in the train. After the cars have been emptied of their contents they are righted by reversing the action of the cylinder and making a return stroke of the piston. The return of the car body to normal position is thus both rapid and positive yet under the perfect control of the operator. The only air connection between cars is made by means of an ordinary air-brake hose and the reservoir upon each car holds enough air to discharge and right the car body several times without replenishment.

As capacities are figured upon a car box level full an amount of material appreciably larger than that indicated may be loaded. A car of the capacity mentioned, when completely filled as far above the side boards as is possible without spilling, will hold 43 cu.yd. or even more. It will dump in from ten to thirty seconds. The material flows without interference, because when the door is opened there is approximately 5 ft. of clearance. Cars like these reduce the delay to traffic and make it possible to dump from tracks which are in use for other purposes. Rocks up to eighteen tons in weight have been handled on these cars.

DUMPING THREE CARS OF SPOIL BEYOND EDGE OF TIES ON A RUN AND FINISHING OFF BERM WITH DITCHER

The flanger, ditcher or scraper behind the rear car cleans up the edge of the dump so that the next trip will find an unobstructed site for discharging and so that if necessary the track can be relined to a point nearer the edge of the dump without any hand shoveling. Note how the gates flung upward about five feet clear of the car bottom give the material such fairway that it does not choke but shoots outward so that much of it travels to the bottom of the dump.



CLUBHOUSE AT IDAMAY MINE OF CONSOLIDATION COAL CO., IS VISITED BY THE WEST VIRGINIA COAL MINING INSTITUTE

West Virginia Coal Mining Institute Meets in Fairmont

Progress in Mine-Car Construction—Was the Carboniferous Era a Reign of Terror?—Testing Out Protective Electrical Devices—Mules Versus Storage Batteries—Haulage Accidents

ASSURANCE could always be felt that the West Virginia Coal Mining Institute would receive new impetus whenever it would meet in Fairmont. Why it has not held meetings there more frequently is a puzzle. Bluefield and Fairmont are far better centers than Huntington and Charleston, as far as attendance is concerned. The number present at the meeting of June 7 and 8 at Fairmont carried memory back to the earlier days of the institute, when it was stronger than it has been in recent years but hardly any more active than it proved to be at this last meeting.

J. W. Bischoff, of Elkins, the president of the institute, opened the meeting with the annual address, declaring that during the war the great problem was to get coal and any makeshift was excusable if it produced the desired output. Today with the mines idle much of the time for lack of orders and with prices too often below a remunerative level economy is the most important of all needs, as indeed it is even in normal times. He therefore urged the importance of the institute as a means of acquiring a knowledge of the principles of economy in operation.

Cars of Large Capacity Yet of Small Size

Ira E. Stevens, mining engineer and manager of the mine-car department of the Fairmont Machinery Co., gave an extemporaneous address on "The Mine Car and Mine-Car Truck Design," discussing the evolution of the mine car from a simple box to a box with flares, then with offsets and finally square once more but with a housing over the wheels. He described the development of the car door and expressed his preference for a door that is hinged so as to lift vertically as against the door that merely swings from a crossbar to which it is directly hung.

He favored combination cars with wood bottom and steel sides, the corrosion of the steel bottom having brought prompt discredit on the all-steel car. The use of an axle box that made it possible to lubricate all the rubbing parts and which would run as long as 2½ years without relubricating was strongly urged as a big improvement on cars that have to be oiled "as often as you see them." The solid corrugated plate truck with divided axle was described and its advantage emphasized. The speaker laid stress on the value of roller bearings.

In the discussion Mr. Little, of the Star Car & Foundry Co., declared that roller bearings had apparently come to stay. Ninety-five per cent of the product of this car factory is roller-bearing cars. The Hyatt Roller Bearing Co. puts out 200,000 mine-car roller bearings per year. All the trouble in the past with these anti-friction devices arose from the faulty construction of the boxings in which they ran and in using a bearing too short for its diameter.

Carboniferous Era a Period of Disturbance

Josiah Keeley, general manager, Cabin Creek Consolidated Coal Co., addressed the institute on "The Origin of Some Local Coal Formations." His paper was a really eloquent attempt to correct the general belief that the carboniferous era was a period of gentle upheavals and slow sedimentation. Prefacing his remarks by an account of the early stages in the formation of the world, when the vapors of which it was composed condensed into an envelope of liquid which was responsive to the attraction of the sun and moon, as is the water of the oceans today, he asked his hearers whether the carboniferous era, which lay between our period of quiet and the period just described, was not in a sense a reign of terror marked by convulsions and cataclysms and by rapid depositions of material consequent on volcanic action—a condition far different from what geologists in recent years have hypothesized for that era.

The discussion was short and not as animated as might have been expected. With only one fault in the bituminous section of Pennsylvania—that in the first basin—and one dyke — that near Brownsville — and only one fault — the Warfield—and no dyke in West Virginia one would naturally be disposed to think that the carboniferous measures must have been laid under conditions of unusual quiet. And yet it is questionable whether even these disturbances occurred when the measures were being deposited or took place some time later. The persistence of seams and even binders seems to sustain amply the orthodox view that the carboniferous era was one of quiet which was broken only

at its close, when the "Grand Push" occurred, as the state geologist of Pennsylvania, G. A. Ashley, terms it. Frank Haas and A. C. Callen welcomed the boldness with which the author criticised the theories of the present-day geologists but they refused to commit themselves to any approval of his declarations.

Much Supposition, but No Sustaining Proof

Among Mr. Keeley's statements was one to the effect that he doubted if the peat and lignite of recent deposition would ever in the progress of time be converted into coal. For all his theories, Mr. Keeley advanced no proof except to point out that at the same horizon shale was found in one place and sandstone in another and that beds of splint coal and cannel were found in juxtaposition with beds of ordinary coal. Much remains to be determined, but surely nothing is more certain than that small readjustments and quiet sedimentation with some erosion marked the carboniferous era, though toward its close mountain masses were being pushed up in the East and were tending to rumple the beds along what is now the eastern rim of the field, thus folding the beds to the west in miles-wide corrugations and bringing to an end the carboniferous period.

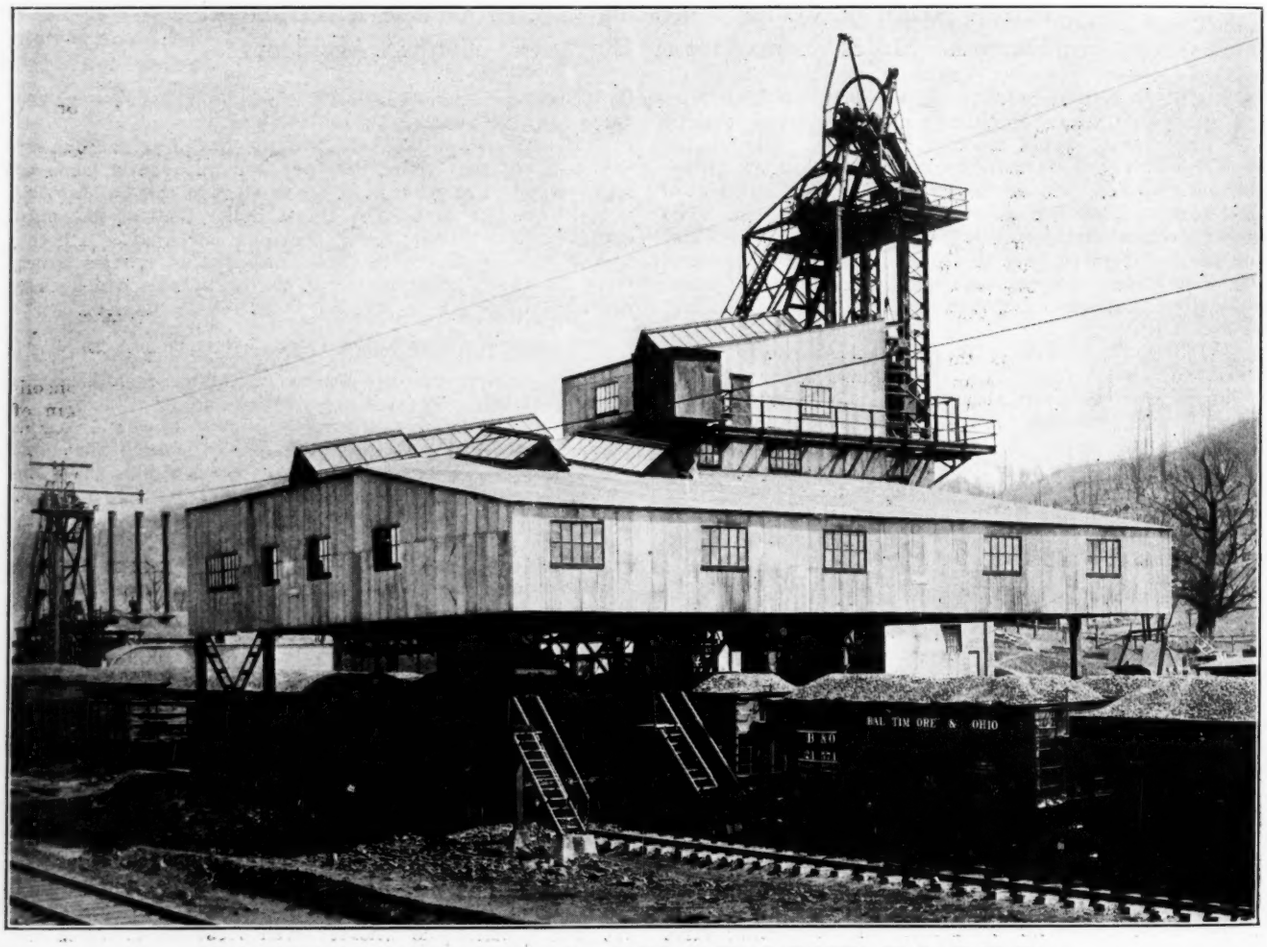
B. T. Grim's paper entitled "Protection of Electrical Equipment" followed. Mr. Grim is of the power and mechanical department of the Consolidation Coal Co. The introduction of electricity has been the cause of many fires in the mines, and these the recently introduced electrical devices seem likely to make less frequent, dangerous and destructive. He declared that arrestors should not be discharged into the mine rails, and that all protective devices should be tested by artificially creating the conditions against which the devices were intended to guard, watching them meanwhile to see that they furnished the desired protection. It was better engineering to spend time testing the apparatus than to expend it in making repairs after the electrical equipment had been damaged.

In the afternoon E. E. Boon, manager of the coal and oil section of the Westinghouse Electric & Manufacturing Co., made an excellent talk on "Storage-Battery Versus Reel-Type Gathering Locomotives," presenting the following table of relative costs:

	Trolley Cable-Reel	Trolley Rope-Reel	Storage-Battery	Combination
First cost	100	105	142	139
Total installation cost	150	160	165	195
Interest and depreciation	16	17	26	27.5
Yearly maintenance	9.5	6.2	5	7
Power	1.2	1.2	1.1	1.2
Attendance	1.0	1.0	1.5	1.5

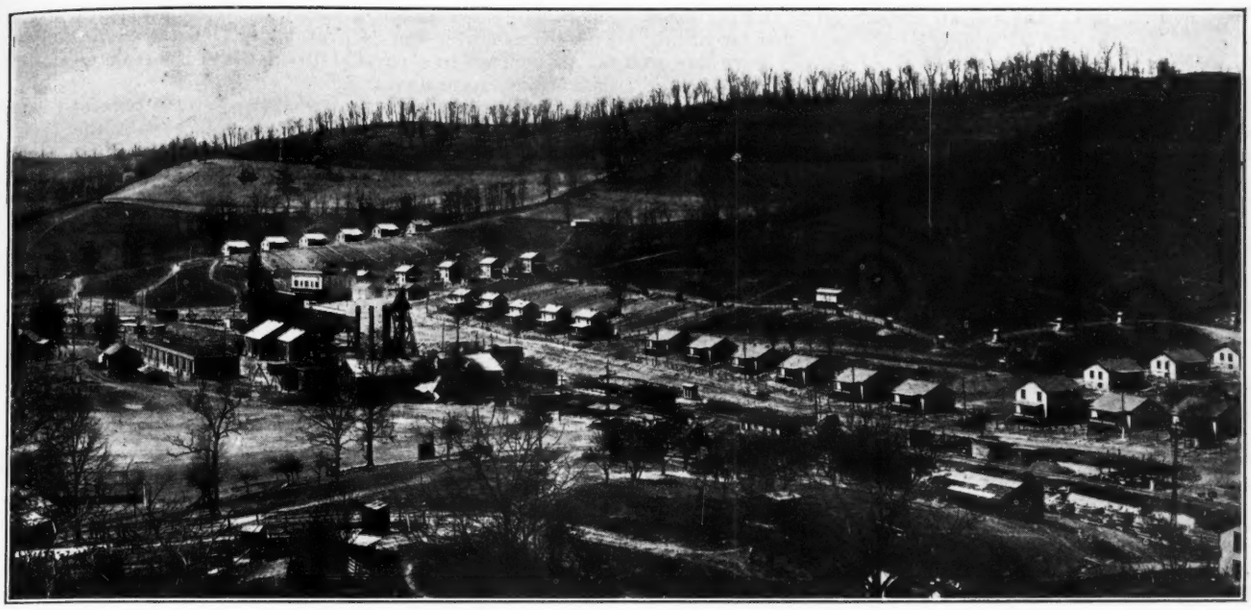
R. Dawson Hall inquired whether in making the calculation any consideration had been given to the fact that the storage battery drew on the night current and so consumed energy that was produced when there would be little load on the line and yet when there was enough load to make it necessary to keep the power-house force at work. It might therefore be regarded as cheap power that, if not used for that purpose, would make the night load per kilowatt excessively expensive to meet. Furthermore, as it avoided the peak periods of generation and use, it made the average power cost lower when power was purchased.

The author in reply said that the power was figured at the same rate for all kinds of locomotives; the power used by the cable-reel and rope-reel locomotives, though generated during the day, was charged at the same rate as that used by the storage-battery locomotives, which was generated during the night, and that used by combination loco-



HEADFRAME AND PREPARATION BUILDING AT IDAMAY MINE, IDAMAY, W. VA.

The reader will note the many skylights in the roof of the building and the convenient passageways for car trimmers. Light and other conveniences for cleaning coal efficiently are more evident in modern tipples than in those that preceded them. Formerly the windows at the side were efficiently are more evident in modern tipples



VILLAGE AND PLANT OF IDAMAY, TAKEN IN THE BLEAK OF THE YEAR

Idamay is one of the newer plants of the Consolidation Coal Co., being in the area where a shaft is needed to reach the coal. This shaft is over 500 ft. deep. The Consolidation Coal Co. fortunately has the terrain in its favor in laying out its towns, few West Virginia coal-mining villages being so little cramped for room.

motives, which was generated partly in the night and partly by day. In consequence, the figures showing the relation that exists when all power is regarded as equally expensive would be modified so as to give a better rating to the storage-battery power if the hour at which the power was produced were duly considered. It may be added that one anthracite company, the power plant of which is already overloaded by day, is ordering its superintendents to requisition for storage-battery locomotives whenever they can be used and is doing this for the express purpose of cutting down the day load, which is excessively high. Mr. Appleton said that some depreciation charges against the storage battery should in his estimation be regarded rather as maintenance than as depreciation charges.

Live-Stock Haulage Still Advocated

C. H. Tarleton questioned whether it would not have been better to put live-stock costs into the table. He had found that in many places live stock had given better results than any kind of gathering locomotive. Josiah Keeley said that at one mine where 300 tons per day had been produced by a mule team and a single mule and where the coal could have been obtained with two single mules, a combination storage-battery locomotive was installed and it did not pull as much coal as the mules had been hauling. Scattered work might possibly have been the cause, the coal being drawn from five headings. The storage battery was hampered by the long distances it had to cover.

E. E. Boon said that in some mines where mules were in use short passageways from heading to heading had been provided, greatly shortening the distances the mules had to travel. When storage-batteries were introduced they could not use these short cuts and the ability of the storage-battery locomotives was accordingly reduced.

J. Appleton, of the Ironton Engine Co., said that where switches were made by the mine blacksmith, as was too often the practice, no two room switches were alike and derailments were frequent. It was advantageous to lay out the mine appropriately if the storage-battery locomotive was to be used. With 12-lb. rails in the rooms the locomotive had a hard time to keep on the track. Accumulator locomotives, given a fair opportunity, acquitted themselves with credit. He had known one 6-ton storage-battery locomotive to haul 132 two-ton cars per day. He advocated the use of factory-made switches with the curves at room necks of 18-ft. radius with 30-lb. switch rails and 30-lb. rail on the room entries. He had found that a storage-battery locomotive would pull as much coal as two mules.

Mr. Keeley said that with a real mule and a real driver as much coal could be hauled by one mule as by a storage-battery locomotive. Somebody then suggested that there were big differences in drivers and mules and that many mules could be purchased before an animal such as Mr. Keeley referred to could be obtained. Mr. Tarleton declared that good roads were as helpful to mules as to locomotives and that the roads of the Consolidation Coal Co. were fitted for either, 60-lb. rails being used on the main roadways, 40-lb. on the secondary roads, 30-lb. on the room entries and 20-lb. rails in the rooms. He found that live stock would gather coal for 10c. per ton less than any form of locomotive.

L. C. Ilsley called attention to the fact that the Bureau of Mines had established Schedule 15 under which storage-battery locomotives were being examined for approval. He stated that one locomotive had already been approved and that three others were under examination.

Depreciation, Depletion and Obsolescence

The next paper to be read was that by Frank Haas on "Depreciation, Depletion and Obsolescence." He declared that all these items were more or less charges not to be decided by accountants but by engineers. As for depreciation, he said, it paid to buy a new machine when the excessive upkeep of the old machine equalled the interest charges on a new machine plus its depreciation. Many a machine could go on working many years after it was no longer profitable to continue operating it, because the frequency and magnitude of the repairs made the upkeep excessive.

As to obsolescence, a machine became obsolete when the excess of cost of operating the old machine exceeded the interest charge on the new machine plus its depreciation. Formerly a mine could be equipped for as many dollars as there were tons of annual production. Now with a drift mine the investment was $2 per ton produced annually, with a shaft mine $3 per ton, and when loading machines were used the relative cost would be even greater. Machines had the advantage that they did not strike or migrate and that was one reason why they were so popular.

Mr. Haas declared that as shares of stock passed from hand to hand the directors who were intrusted with the conduct of the company's affairs were not justified if they did not make provision for charges large enough to balance the decline in values consequent on depletion, depreciation and obsolescence. If consideration to this fact were not shown, future purchasers of stock would find that the property which they acquired would be of considerably less value than that which the stock in the first place had represented.

W. E. Fohl then delivered an address on "Transportation Hazards as Applied to Mining." He said that according to British returns nine-tenths of the fatalities were due to carelessness of employees and eight-tenths to the negligence of the victim himself. He urged that failure to take thought was at the bottom of the failure to take care, and that this was often the outcome of fatigue, sickness, discontent with working conditions or with the personnel on the job or of disagreements or troubles at home. Healthy, happy men were in a degree protected against accidents. He then began to ask questions as to the precautions being taken against transportation hazards.

Speaking about the marking of manways, Mr. Reed declared that at the Columbia mine wherever manways crossed ropeways a band was painted along the manway, and the men were directed into and away from the length of roadway so marked by a sign reading "To the left" or "To the right," as the case might be.

When the question was presented as to the use of sprags, Mr. Reed said that he found that there were fewer accidents from sprags than from brakes, as brakes often failed and a good spragger rarely failed in the placing of a sprag. Another question presented was whether the substitution of locomotives for mules had increased accidents. A. C. Callen said that in twenty years the animal-haulage fatalities in Illinois, the returns from which he had examined, constituted 80 per cent of all transportation fatalities, the locomotive fatalities representing the other 20 per cent. This statement was somewhat thrown into the discard, as there was nothing to show how much coal was hauled by either method.

Another question raised concerned the safest type of coupling for mine cars. C. H. Tarleton said that at all new mines of the Consolidation Coal Co. the single-link coupling would be used, but he failed to say whether he believed this the safer form of coupling. The rules for clearance also were discussed, Inspector W. B. Riggleman declaring that 3 ft. of clearance should be required on the brake side. As a matter of fact the law does not specify any given amount but requires that the haulage roads in the mine "shall be made of sufficient width to permit persons to pass moving cars with safety." It is the state department that has ruled apparently that the distance needed for full compliance with the law is 3 ft.

In the evening the Northern West Virginia Coal Operators Association took the institute and its guests to the Fairmont Country Club and entertained them lavishly at a dinner. There was no speech making.

Advocates Larger Room-Entry Pillars

At the morning session of Wednesday R. Z. Virgin, professor of coal mining at Carnegie Institute, read a paper on "Some Considerations in Rib Drawing." Mr. Virgin said that no entries in the mine were subject to more stress than those which were used for the opening of rooms. These room entries nevertheless frequently had wholly inadequate pillars, though the main entries, which were subject to little stress, usually were provided with pillars of great size. He believed that it would be better to give more protection to the room entries.

He urged that the pillars if cut at an angle when they were being drawn would give a longer working face. A cutting line at an angle of 45 deg. to the pillar line would give the machines an opportunity to cut more coal than they could have where they cut the pillars at right angles to the length of the room. He also advocated making the break line parallel to the line of fracture of the roof because the latter then would break with less resistance, and would then fall at an even distance from the pillaring face and so bring less weight on the cutting face and it would be easier to hold the roof so that it would not jeopardize the men who were mining and loading coal.

He urged also that water should not be allowed to collect in idle rooms because the water would cause the floor to deteriorate and would make it impossible to get a fair footing for props and also would weaken the support of the pillars.

Joseph W. Reed declared that in pillar drawing there was an advantage in cutting the pillar at right angles to the room length and that the stepped pillar line was not a disadvantage even though it involved the support of a larger area of roof over the excavation. The cutting of the roof on an inclined line parallel to the line of break was both unsafe and unconservational.

Frank Haas declared that what Mr. Virgin regarded as a desideratum—the lining of the pillar face with the break line—was anything but an advantage. Keeping water out of an unpillared section did not appeal to him as good practice. Has not the floor of the mine, he asked, been subjected to wet conditions for centuries prior to mining, for coal in its natural state is always wet. So long as the mine floor is under water, new—that is, atmospheric—agents cannot affect it and it is better preserved in consequence. Dry conditions, he declared, accentuate deterioration.

Mr. Keeley could not assent to Mr. Haas' statement, for he said he had found in places that water had a distinctly bad effect. Mr. Virgin in reply said that near Wheeling he had much trouble from water flooding the workings. The river rose and entered the mine, and thereafter he could not find footing for props, and the pillars cracked. Continued submergence might be well, but if the air has once been allowed to act and if it be permitted to act a second time the result is not so favorable.

In regard to these contentions it may be said that the stepped roof makes it possible to let the roof receive at places the full support of the coal. Where the line is cut straight the roof for the whole length of the face is resting on props which, as placed in practice, are unequal to the load. In regard to the effect of water on the clay it may be said that the weight on the floor causes it to heave, giving the water opportunity to be more active in the disintegration of the bottom than it was before the coal was excavated. Where the pressures are not so great the floor is not broken, and the water cannot act to any depth. The natural floor may be wet on top and so freed from carbonate of lime, but lower down it may contain bodies of that substance that will dissolve and swell, causing the floor to become unduly weakened. The effect of water depends on the degree of pressure on the bottom and on the material of which the bottom is composed. In some mines water seems to act as a preservative.

Storage of Coal as an Operating Facility

W. A. Weldin, of Blum, Weldin & Co., engineers, of Pittsburgh, read a paper on "Coal Storage at Mines." He declared that, as pursued at mines, storage had two purposes: (1) to carry the mine over short periods of delay, such as are caused by failure of cars to arrive owing either to the railroad's inability to place cars according to its promises on that or the previous day or to the necessity for holding back cars that were imperfectly cleaned or needed some trifling repairs, or (2) to enable the mine to run when the orders called for specific sizes of coal and did not provide a balanced demand for all the sizes which the mine produced. He regarded the storage pile at the mines rather as an operating facility than as a corrective of the seasonal character of the coal industry.

It, however, had some seasonal value. The Lake shipments were largely of screened coal. While Lake movement was brisk and other shipments were unduly low there was apt to be an excessive demand for screen sizes and something should be done to find a place for the slack. Later the slack became in somewhat greater demand than lump or nut coal. He declared that storage should provide for the separate piling of the different sizes and held that the coal, when recovered, should be returned to the tipple above the screens, so that it could be resized.

Mr. Weldin said that a hold-up of cars for a few hours should no longer be a valid cause for wasting the time of daymen in the mine and on the tipple. The mines should run steadily all day long, and when loading into railroad cars was resumed then the storage machinery should be reversed and coal brought back to the tipple for loading. He said that often a manager was much pleased to find that three or four men on a holiday could load out a whole day's run and so make use of railroad cars where otherwise they would have to be held idle.

Sometimes when the railroad company has placed cars,

it may be hard to get out enough men to load them. In this case the railroad has a grievance, and the rating of the mine may be cut down. In cases the rating may be kept higher if enough coal has been stored to keep the mine running steadily regardless of the number of absentees.

Mr. Weldin said that coal could be stored in mine cars. This system though high in first cost saved labor, because the coal could be held and dumped without involving any additional charge. There were, of course, other advantages in having more cars than normal operation demanded.

Storage in bins has always been practiced in the Connellsville region, the coke ovens being charged at a certain time each day from the coal in the bins. Such storage also has been customary where railroad locomotives have to be coaled at night. At these places the benefits of the balancing effect of storage have always been felt. The main subject of Mr. Weldin's remarks, however, was ground storage. He remarked that it is easy enough to store coal. Many have embarked in it, forgetting that recovery is more difficult than storage unless proper preparations for recovery have been made. Speaking about storage over tunnels he said it might prove inadvisable owing to the freezing of the coal during severe winters.

Build a Pile of Piles, Not a Single Pile

In reference to fires in coal piles he stated that the forming of a single pile of coal by dropping the material onto the peak and letting it roll down the sides was likely to favor spontaneous combustion. Coal should be stored by dropping little heaps at different points in the yard. By making a number of such piles the coal could be built up so that the large and small coal would be completely intermingled. At some plants it has been possible to prevent heating by washing the coal prior to storage.

E. A. Holbrook, assistant director of the U. S. Bureau of Mines, spoke on the topic "The Bureau of Mines' Interest in the Coal Industry." Mr. Holbrook said that the Bureau of Mines' appropriation ran about 50c. for each man engaged in the industry. No individual service could well be rendered by the bureau with such a small appropriation. All the bureau could do was to point out the right methods and to ascertain what kinds of apparatus and equipment are permissible for use in the mines.

Should inspection be added to its duties the bureau's appropriation would have to be greatly increased. He hoped that this function would not be given to the bureau, but that duties such as these would be performed by state institutions. It was a great surprise to foreign visitors that the Federal Bureau had no regulatory powers and had been given only advisory functions. Mr. Holbrook said that the bureau was assisting much in standardization work. There was a need for greater similarity in track gages and other like dimensions and much need for greater uniformity in state laws regulating mining.

Bureau a Fact-Finding and Announcing Body

The bureau, he said, is a fact-finding body which acts as a clearing house for all the clearing houses in the industry. It drew together the experience of all individuals and institutes in the country and abroad and gave the digested results to the mining public of the United States.

William K. Wilbur, of the Koehler Manufacturing Co., described the Wheat lamp, which gives as much as 2.1 candlepower and is unusual in other ways. Francis McQuillan, of the Monongahela Power & Railway Co., of Fairmont, showed how a small company using machines rated at 400 hp. probably would supply generators capable of producing that amount of electrical energy, but if five plants went together they might be able to get along satisfactorily with 1,100 hp., though the aggregate capacity of the installed machinery would be 2,000 hp.

Where several plants are combined the several machines make their separate demands at different times and with care to keep the diversity factor low, by pumping at night and charging batteries at that time, the whole load of 2,000 hp. can be handled by generators rated at 550 hp. or 400 kw. There is, therefore, an advantage in central station power which is based not alone on efficiencies in equipment and better power-house management but on the lowering of the diversity factor by taking on the needs of plants which make demands for current at different times.

In the afternoon transportation was provided to the Idamay mine of the Consolidation Coal Co., where the shaft was inspected on the surface and below, a visit paid to the amusement hall and the power house. Idamay shaft is slightly over 500 ft. deep and, being a gaseous mine, the men use electric lights exclusively.

Government Wants Oil and Gas Valuation Engineers and Aids

THE U. S. Civil Service Commission announces that it will receive applications until Sept. 1 for positions under the income tax unit of the Bureau of Internal Revenue, Treasury Department, as follows: Valuation aid (oil and gas), at $1,200 to $2,500 a year; assistant valuation engineer (oil and gas), at $2,500 to $3,600 a year; and valuation engineer (oil and gas), at $3,600 to $4,800 a year or higher.

Appointees at an annual compensation of $2,500 or less, whose services are satisfactory, will be allowed the increase of $20 a month granted by Congress. Competitors will not be required to report at any place for a written examination, but will be rated upon the subjects of (1) physical ability, weighted at 10 per cent, and (2) education, training, and experience, weighted at 90 per cent.

Full information and application blanks may be obtained from the U. S. Civil Service Commission, Washington, D. C., or its representative at the post office or custom house in any city.

Want Work Divided Evenly Between All Men Working for Any One Company

ONE thousand miners assembled at Petersburg, Ind., June 9, from all points in southern Indiana to protest against the Pike County Coal Co., a subsidiary of the Martin Howe Coal Co., of Chicago, hiring men to do syndicate work at the Atlas mine, north of Petersburg, the company having a score of miners at work at that mine cutting entries for winter trade. The miners contended the syndicate work should be divided equally among all men employed in the mine, numbering nearly 400. Matters were settled amicably when the men in the mine came out and told the protesting miners that they would refrain from further work until an agreement could be reached by the operators and the miners.

Illinois Mine Catches Fire; Men Escape

WHEN the underground machine shop of a mine belonging to the St. Paul Coal Co., a subsidiary of the Chicago, Milwaukee and St. Paul R.R., located at Mark, Ill., caught fire, June 10, it blocked the exit of 600 men but nevertheless they managed to escape. The shop is located half a mile back from the main shaft. It was announced that all the men had been checked out of the mine. The operation is in Putnam County, in the La Salle district.

IT IS UNDERSTOOD THAT the Bureau of Efficiency will recommend that all statistical activities of the government be consolidated into a Bureau of Statistics in the Census Bureau, to embrace a division of mineral production statistics to include statistics now handled by the Geological Survey, and a division of occupational statistics to take over mine-accident statistics now handled by the Bureau of Mines.

SECRETARY OF COMMERCE HOOVER plans to improve the position of the United States in the foreign and domestic coal trade by the organization within his Department of a coal trade group under a supervisor, with assistants, and an advisory committee.

Problems of Operating Men

Edited by James T. Beard

Economy and Efficiency in Ventilation

Poor Mine Ventilation Means Loss of Efficiency. Bad Air Renders Men Incapable of Performing a Day's Work. The Daily Tonnage Drops Accordingly. Good Ventilation Quickly Pays for Itself.

THE letter of Henry Bock, entitled "Efficiency in Ventilation," *Coal Age*, April 28, p. 755, draws timely attention to the need of good mine ventilation. There is no way of estimating the real cost of failure to provide ample ventilation at the working face of a mine.

A comparison between a well ventilated mine and one that has little or no ventilation reveals a marked difference in the physical ability of the workers to accomplish the tasks given them. Even the most casual observer will notice this difference, on his visit to mines of either class. In the one there is action on every hand, while in the other nothing appears to move except at a snail's pace.

It is quite common on going into a mine to find one section of the workings where everything is in order and there is action. In another section of the same mine, perhaps vastly different conditions are observed. Disorder and complaint are on every hand. Generally, one has not far to look to find the excuse for this difference. It is in the quantity or quality of the air furnished the men.

No Miner Can Be Blamed for Not Working When Air Is Bad

Entering a place where the air is poor, we are not surprised to find the miner seated in the breakthrough where he can get what little air is passing. On calling his attention to the condition of his place, he yawns and manages to say, "Yes," and then yawns again, adding, "I'll attend to that after awhile." Continuing on our way through the section, we find a very tired lot of men and the animals, if any, have the same jaded appearance. The trouble is, there is not air or, I would rather say, oxygen enough to keep the men alive to their work. Everything drags along and the result is a low tonnage and a high cost-sheet.

This condition is not the fault of the men. They have complained from time to time, but there has been no response on the part of the management, who are wont to claim that this section of the mine is not a good producer. Even the foreman reports that the air is fairly good, but forgets that a man walking through a section consumes about one-tenth of the amount of air required by a man who shovels coal or mines a shot.

Few mine officials will deny that it pays and, indeed, is absolutely necessary to provide good ventilation underground. At the same time, the means to bring this about are often lacking in the mines of which they have charge. Once in a great while we find a board stopping that does not leak, at least for a year; but, as a rule, this kind of stopping is an ineffective means of distributing the air and should be condemned.

Build Solid Air-Tight Stoppings

To my mind, there is just one way to insure good ventilation at the working faces in a mine, and that is to build substantial stoppings on all main entries. Such stoppings should be built of concrete or brick laid in cement. Overcasts should be built of the same material. All of this class of work should be constructed in a manner that will lend support to the roof and not be destroyed or rendered ineffective by reason of settlement in the strata.

While there are many well ventilated mines, I know of none better than one mine I now have in mind where the stoppings are all built of brick. The main-entry stoppings in that mine are laid up three bricks thick for half the distance and two bricks thick the remaining half. On the cross-headings or flats, the stoppings are carried up halfway with a thickness of two bricks and finished with one brick in thickness the remaining half.

Stoppings Built by Contractor

All the stoppings are built by contract, the company furnishing the material and delivering it where it is needed, before the contractor goes to work. In this connection, it is interesting to note the work two men can accomplish when they have the necessary material at hand and there is no delay.

In contrast with this instance, I recall another mine that was old and poorly ventilated. The condition was such that the mine inspector compelled them to rebuild all the main-entry stoppings. He asked that there should be 15,000 cu.ft. of air per minute passing through the last breakthroughs on the main north and south entries, which were over a mile from the shaft bottom.

The work was to be accomplished in ninety days. In that case, the company took the opportunity of brushing the roof, which gave them plenty of good stone for the stoppings. With this material, they built 8-in. walls up against the old stoppings, which produced the desired result and has kept the mine ventilated during the past seven years. The new stoppings were all of stone.

GEORGE EDWARDS.
Pikesville, Ky.

Coal Pulverizing Stations

Efforts made by producers of coal to render their product adapted to the particular use of consumers and assist in its distribution.

WE read with interest the editorial that appeared in *Coal Age*, April 7, p. 612, entitled "Pulverizing Stations." It would seem that the writer of the article was not familiar with the methods employed by us in the manufacture and handling of powdered coal here in the West.

The plant where we manufacture this product is located close to and, indeed, is practically at one of our mines, where it has the advantage of being centrally situated with respect to our other mines, numbering seven in all. These mines are at distances apart varying from five to twenty-five miles.

The powdered coal is shipped in specially designed cars to our distributing yards in this city where it is bunkered. Distribution to consumers is made by large motor trucks, as we observe is recommended in your article. To the best of our information, we are the only manufacturers of powdered coal who employ this method of handling and distributing their product.

Again, the editorial states, "The man who has coal to sell must do his part to convert a potential into an actual market," which we are also doing by maintaining a department of experimentation that furnishes service and advice to the present consumer, in the handling of all engineering problems.

Our engineering department has perfected a scheme for marine installation that makes it possible to use restricted bunker space in ship bottoms. Such an installation will soon be made in a local boat, which we expect will demonstrate the practicability of the use of powdered coal in marine practice.

PACIFIC COAST COAL CO.,
J. T. Dovey, Assistant to the
Seattle, Wash. Vice-President.

Depth of Water, Airway Half-Full, Another Solution

Applying a principle in geometry, instead of employing an algebraic equation.

PERMIT me to offer the following solution for finding the depth of water in an airway having the form of a trapezoid and half-full, which question was asked and answered in *Coal Age*, April 14, p. 676. My solution does not depend on the use of algebra or a complicated formula.

This airway being a trapezoid having a width of 9 ft. on the floor and 6 ft. at the roof and its height being 6 ft., its sectional area, as found in the previous solution, is $6 \times \frac{1}{2}(6 + 9) = 45$ sq.ft. When the airway is half-full the area of the wetted section is, therefore, $22\frac{1}{2}$ sq.ft.

Now, if the two sides of the trapezoid be extended till they meet at a point, there will be formed a triangle whose base is the floor of the airway, or 9 ft. But, since the two sides approach each other $9 - 6 = 3$ ft., in a height of 6 ft., or at the rate of one foot in each two feet of height, the altitude of the triangle formed is $2 \times 9 = 18$ ft., and its area is $\frac{1}{2}(9 \times 18) = 81$ sq.ft. The area of the triangle above the water when the airway is half-full is then $81 - 22\frac{1}{2} = 58\frac{1}{2}$ sq.ft.

We can now apply the principle of geometry that the areas of similar figpres are to each other as the squares of their like dimensions. Or, in other words, the like dimensions of similar figures are to each other as the square roots of their areas. On this basis, the ratio of the altitudes of the two triangles is equal to the square root of the ratio of their areas.

Therefore, calling the altitude of the triangle above the surface of the water x, we have

$$\frac{x}{18} = \sqrt{\frac{58.5}{81}} = \sqrt{0.7222} = 0.85$$

$$x = 18 \times 0.85 = 15.3 \text{ ft.}$$

Finally, subtracting this altitude from the altitude of the large triangle, gives the depth of the water when the airway is half-full; thus, $18 - 15.3 = 2.7$ ft.

JOSEPH NORTHOVER.

Pittsburgh, Pa.

Safety in Machine Pillar Work

Safety, the primary object in coal extraction. The breakline in pillar work never regular. Greater protection afforded by solid coal than by post timbering.

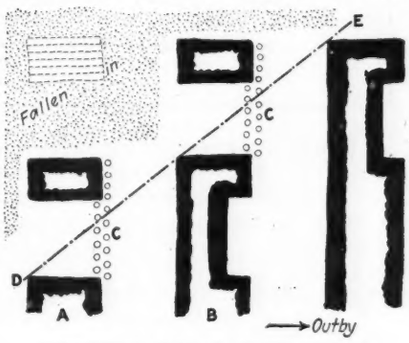
REGARDING the relative safety and completeness of extraction of the coal afforded by the two methods suggested of starting to cut the rib, in drawing back pillars on the retreating system, *Coal Age*, Apr. 28, p. 757, permit me to say, safety is always the first thing to consider in the extraction of coal.

The retreating method of mining if properly conducted, presents a maximum degree of safety, as the workmen are protected by the natural support of solid pillars of coal between them and the mine opening. When these pillars are made of suitable dimensions they are more effective in maintaining a secure condition of the roof than any artificial means that can be applied for that purpose.

How Roof Falls in Pillar Work

In order to illustrate my idea, I am presenting a small section of pillar-work on the retreating system, showing two pillars *A* and *B* that have been cut through by the machine, leaving two stumps of coal to be taken out with the pick. As here shown, in the retreating method the end of each consecutive pillar is behind that next adjoining.

Now, if the machine cut is started on the outby rib, as appears in the figure, the miner is protected by the solid coal behind him. On the other hand, if the cut was to be started on the inby side of the pillar the only protection afforded the miner or cutter



SHOWING SMALL SECTION OF PILLAR WORK

would be a few posts. Such protection would only be adequate if it were possible to maintain a safe unshattered condition of the roof by standing props.

My experience is, however, that even when posts are stood in double rows they will be knocked out by the fall of roof common in pillar-work. The idea often prevails among mining men that the breakline in pillar extraction will coincide with the line of the ends of the pillars, as indicated by the broken line *DE*, in the figure.

Instead of this, experience teaches that the roof will fall, in any and all directions, up to the line of a natural support, if the coal is taken out completely. It is also a fact that each successive fall will generally be of greater extent than the preceding one and will exert a greater crushing force on the supporting pillars.

Removing Stumps by the Pick Is Always Dangerous Work

But, referring again to the figure, before the stump can be removed with picks, posts must be stood as shown at *C*; and, unless these posts practically fill up the roadway as far as the waste, the roof fall that follows the taking out of the stump will either extend across to the opposite rib or so shatter the formation as to make the place unsafe for work.

In taking out the stump, the work should be started from the inby end and progress from *A* toward *B*, in order to lessen the effect of the crushing action on the decreasing size of the stump. In this manner, the work is made less hazardous, as it is constantly approaching the point of natural support.

If the work on the stump, however, was to progress in a direction from *B* to *A* the hazard would be greater; because, at the moment of the most imminent danger, the miner is at the greatest distance from the point of natural support and would have farther to go to reach safety.

Cutting the Rib from the Inby or Gob Side of the Pillar

In respect to the complete extraction of the coal, the plan of starting the machine cut on the inby rib of the pillar would doubtless give good results if safety of access could be maintained. In my opinion complete extraction depends on maintaining a safe access to the working face and this seems to me to be more certain when the work is started on the outby rib and the pillars cut through to the gob side.

Reference has been made, by way of comparison, to the plan of cutting across the ends of pillars with machine or pick. If advisable at all, this should be done only under an exceedingly strong roof, where a large area can be extracted before a fall occurs, and should be limited to the first fall that takes place.

Though not having seen the plan followed of starting the machine cut on the inby rib, I fail to understand how there would be either greater safety in its adoption or a more complete extraction of the coal. I have seen the machine cut started on the outby rib, under ordinary and bad roof conditions, and believe the remaining stump can then be extracted completely and with the greatest degree of safety.

Holsopple, Pa. I. C. PARFITT.

Angle of Shotholes in Blasting Coal

The depth to which a shothole is drilled may comply with the requirements of the law, but the direction of the hole make the shot dangerous. The angle the hole makes with the face of the coal has an important bearing on safety.

IN RESPECT to the real meaning of the wording of the Bituminous Mine Law (Art. 4, Sec. 9) referred to in *Coal Age*, April 14, p. 676, I fully agree with the editor that the word "undercutting" should read *cutting* and apply to any cut made in mining the shot.

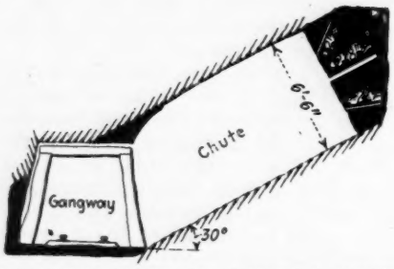
However, it occurs to me that a matter of greater importance which is not mentioned in the law is the angle that the drillhole should make with the face of the coal. To my mind, this feature should receive the careful attention of every mine foreman when inspecting a hole before it is charged.

For instance, a hole may be drilled to a depth much less than the cutting and yet the angle of the hole be such that the shot will be out of balance. When such a hole is fired there will most probably result a windy shot that would be dangerous if any gas is present, or much worse if dry dust has accumulated as is often the case in a mine known to be free from gas.

Firing Two Badly Placed Shots Causes Explosion

To illustrate this point, may I recite briefly the terrible result of firing two shots that had been drilled at a wrong angle with the coal face? The accident happened in a 6½-ft. seam having an inclination of 30 deg., and where the ventilation was natural.

In a room driven about 12 ft. to the rise of the gangway, a centercut had been made in the face of the coal, to a depth of 2 ft. 8 in. The place was driven narrow to be used as a chute when drawing back the pillars, in retreating. The accompanying figure shows the position of two shotholes,



DRIVING CHUTE ON A 30-DEG. PITCH

one in the top and the other in the bottom of the coal and each drilled to a depth of only 2 ft.

The top hole made an angle of about 40 deg. above the pitch of the seam, while the bottom hole dipped 20 deg. with the floor. Most men will agree that while the holes were not as deep as the cutting the angles at which they were driven required a much deeper cut to avoid danger.

The two holes were charged with black powder and fuse. The firing of the holes resulted in a windy shot and a dust explosion followed that killed 43 men. It was thought that both holes blew their tamping. Some argued that the shots did not explode at the same time and the flame of the second shot was projected into the explosive gases and dust created by the first shot.

Men Were Killed by the Afterdamp; Bodies Not Burned

There were 23 men working in that section and, while eight of these managed to escape, they died from the effects of their burns within three days. The remaining 20 men were killed with the afterdamp which was carried by the current into another section of the mine. The velocity of the air was about 120 ft. a minute. These men had no traces of burns.

Investigation showed that where the flame extended it traveled low near the floor. A mule boss was found dead with his lower limbs and body burned, while clothes that hung on the timbers near the place were not scorched. It appears that any of these burns were not sufficient to cause death, which must have resulted from the deadly afterdamp.

The force of the explosion was not great, as shown by the fact that no cars were overturned, nor any great fall of roof found on the roads. At the same time, much coked dust was found on timbers at a distance of 575 ft. from where the shots were fired. The explosion caused no fire, probably owing to the lack of oxygen in the mine air.

It should be stated that two men were found, three hours after the accident, lying unconsious in the mine and were revived when brought to the surface. They undoubtedly were at a point where the afterdamp had become more diffused so that the percentage of carbon monoxide or other gases present was not sufficient to cause death.

This accident happened, of course, where the miners were permitted to fire their own shots, a practice not yet abolished in many mines. Where competent shotfirers are employed, men will hardly take the risk of placing shots in a manner that they know will not be accepted and fired. This should be an argument in favor of the employment of shotfirers.

Inasmuch as the mine foreman is charged with the duty of safeguarding the lives of the men and the property, it is important that he should see that all shotholes are drilled at safe angles with the face of the coal. It is not enough to test the depth of the hole.

Peru, Ill. GASTON LIBIEZ.

Inquiries Of General Interest

Endless vs. Tail-Rope Haulage on a Slope

Choice of Rope Haulage in a Slope Opening Depends on Practical and Physical Conditions. Endless System Gives Uniform Output, but Costs More to Install

WE ARE opening a new slope mine where it will be necessary to haul the coal from the bottom up the slope and over a tramway, a distance of about 2,000 ft. in all. As yet, we have not been able to decide what is the best system of haulage to employ. The choice lies between the endless-rope and the tail-rope systems. We have been advised to adopt the endless-rope system, which is said to have peculiar advantages that make it superior to the tail-rope system. The chief objection to following this advice, however, is the fact that we would not then be able to use our present hoisting drum, which has a spiral groove that would cause the cable to feed off the drum.

Will *Coal Age* or any of its practical readers give us what information they may have that will enable us to decide on the best course to follow; or state were we can get such information?

———, Mo. GENERAL MANAGER.

Regarding the choice between an endless-rope and other systems of haulage, on a slope 2,000 ft. long including the tramway, it should be stated that much will depend on such conditions as the grade of the slope, available trackroom at the slope bottom and on the tipple, the daily tonnage desired and conditions in the mine that will make possible a uniform supply of coal at the slope bottom.

Under favorable conditions, there is no question but that the endless-rope system of haulage affords a more uniform output and supply of coal at the tipple. This system, however, has the disadvantage that the rope is kept running continuously; and, in order to maintain a uniformly constant load on the engine, the cars must be attached to the rope at regular intervals, which requires a constant supply of coal at the slope bottom.

The system has one decided advantage over other rope systems in that it requires a minimum space or trackroom, both on the tipple and at the foot of the slope. In the use of another system of rope haulage, it will be necessary to provide sufficient trackroom at the top and bottom of the incline for the landing of any number of cars that the engine will haul.

Ordinarily, a tail-rope system would not be employed on a slope, unless the inclination was so slight that the empty cars would not run, by gravity, down the incline and drag the rope after them. While an endless-rope system can be used to advantage on slopes where the inclination is not too great, it is generally advisable to construct an engine plane or use a reversed gravity-plane system.

The engine-plane system of haulage is best adapted to steep inclines. The engine is located at the head of the incline and hauls the loaded trips up to the tipple and lowers the empties to the foot of the slope, which requires the use of a single track only.

Gravity-plane haulage is better adapted to more moderate inclinations. In this system, however, two tracks are required, an empty and a loaded track; or a passing track, or parting, must be arranged at the middle of the incline

to allow the two trips to pass each other. In this system, the descending empties help to balance the ascending loaded cars, which reduces the load on the engine.

In both engine-plane and gravity-plane haulage, the cost of installation is less than in endless-rope haulage, as the former are more simple and require a less length of rope than the latter. While a hoisting drum having a spiral groove can be used on an engine plane, a gravity plane operated with a single rope will generally require a double drum, in order to avoid the fleeting of the rope on the drum. The same is also true in an endless-rope haulage, for a like reason. When a double drum is employed, the grooves are circular instead of being spiral. As the rope makes but half a turn on each drum, there is no fleeting or side movement. One advantage of either the engine-plane or gravity-plane system is that it is not operated except when coal is to be hoisted.

Examination Questions Answered

Examination, Mine Foremen and Firebosses, Bituminous (Pa.), April 5-8, 1921

(First-Grade Questions)

QUESTION—*In shaft and slope openings generating explosive gas, what are the requirements in airways and travelingways according to law?*

ANSWER—The Bituminous Mine Law of Pennsylvania requires (Art. 6) that there shall always be two openings available for the use of the workmen; such openings, if shafts, to be not less than 200 ft. apart and, if slopes, 150 ft., except with the consent of the inspector. The passageway connecting the two openings must be kept in safe condition for travel; and (Sec. 3) a passageway 5 ft. high and 3 ft. wide must be cut in the solid strata around the shaft, at each landing.

Mines generating explosive gas in sufficient quantities to be detected on a lamp must have at least four main entries, two leading from the main opening and two from the second opening. Where locked safety lamps are used exclusively there must be provided a fifth main entry to be used wholly as a travelingway for the men, provided these entries are expected to reach a length of 5,000 ft.

Non-gaseous mines are required to have at least two main entries, one leading from the main opening and one from the second opening. Where these entries are expected to reach a length of 5,000 ft. the law requires that the employees shall be hauled in and out of the mine at the beginning and end of each shift; or a third entry must be provided to be used entirely as a travelingway for the men by which they can safely reach the surface.

Where the coal is less than 3½ ft. in height, the law requires the travelingway to have a clear height of at least 4½ ft.; but if the height of the coal is 4 ft., that of the travelingway must not be less than 5 ft. and its width 6 ft. Travelingways must be well drained and free from refuse, smoke and noxious gases, and contain no electric wires unless these are protected in a manner not to endanger life. The law further provides (Sec. 5) that an overcast or undercast passageway must be provided by which employees can cross the main slope if there are workings on both sides of the mine.

QUESTION—*Give your views as to the cause of crushing of coal pillars in working faces and roadways, and state what method you would adopt to overcome it.*

ANSWER—The crushing of pillars left for the support of the roof is due to the size of the pillars not being proportioned to the depth of cover, thickness of the seam and character of the roof, floor and coal. Crushing may result also from maintaining too large a standing area, which has the effect of throwing an excessive weight on the pillars. At other times, pillars are crushed by the advance of a creep or squeeze started in another place.

To prevent crushing larger pillars must be provided, taking out less coal in the first working. Also, every effort must be made to induce falls of roof in the waste and abandoned areas in the mine. A careful study must be made of the character of the roof, floor and coal, thickness of the seam and depth of cover, to determine the width of opening and size of pillars.

QUESTION—*Name and describe the explosive gases met with in bituminous coal mines. What are their dangers to life and injurious effects on the health of the workmen? Give their symbols and specific gravities and say where they are usually found and how the law requires them to be removed.*

ANSWER—There are three explosive mine gases, commonly found in the bituminous field: namely, methane or marsh gas (CH_4), specific gravity 0.559; carbon monoxide (CO), specific gravity 0.967; hydrogen sulphide (H_2S), specific gravity 1.1912. Olefiant gas (C_2H_4), specific gravity 0.978, and ethane (C_2H_6), specific gravity 1 0366, occur less frequently, associated with methane.

Methane being lighter than air accumulates at the faces of steep pitches or in rise workings where it may be found, or at the roof in level seams. The gas has no color or odor and is not poisonous. As it has no available oxygen it will not support life when unmixed with air. Likewise, the pure gas will not support flame; but mixed with air it forms firedamp, which is inflammable or explosive, according to the percentage of gas present.

Carbon monoxide is an exceedingly poisonous gas, very small percentages present in the air breathed being instantly fatal to life. It is rapidly absorbed by the blood from which it is removed with difficulty. This gas is found in close, poorly ventilated places where a gob fire may be in progress. It is also produced in the explosion of powder, or wherever the oxidation of carbonaceous matter takes place in a limited supply of air. Carbon monoxide forms a considerable proportion of the afterdamp of gas or dust explosions.

Hydrogen sulphide is also a poisonous gas and is generally to be found in low damp places in the mine, particularly if the coal contains much pyrite. The gas has a strong, unpleasant odor. Mixed with air in certain proportions it forms an explosive mixture that is dangerous.

QUESTION—*What precautions should be taken to safeguard the workmen in dry and dusty mines generating explosive gas?*

ANSWER—Such a mine should be well ventilated and the air distributed so as to meet the requirements in each section or split. Every means must be adopted to prevent an explosive condition of the mine air at the working face. Where safety lamps are required at any point, the entire mine should be worked exclusively with locked safety lamps of an approved type. Mixed lights should not be allowed, except drivers and motormen may be permitted to use open lights on main-intake airways. It is far better, however, for them to use electric cap lamps. Strict regulations must be enforced in respect to blasting. All shots should be charged and fired by shotfirers, after the men have left the mine. No accumulations of dust or fine coal should be permitted at the working faces, and all roadways and travelingways should be cleaned at regular intervals. Only permissible explosives should be used to charge the hole. All electrical installations should be made by a competent electrician familiar with mining conditions. It may be necessary to install an efficient sprinkling system throughout the mine. Finally, careful examination of all working faces should be made within three hours of the time when the men enter for work, and firebosses or safety inspectors should make frequent inspection of each working face throughout the day.

West Virginia Coal Output Gained While Coke Production Shrank During 1920

ALTHOUGH the annual report of the West Virginia Department of Mines for the fiscal year ended June 30, 1920, has not been printed, the report has been compiled and discloses the fact that during the period mentioned there were 882 companies reporting 1,440 operating mines, which together with the small wagon mines produced 89,590,274 net tons of coal, an increase over the coal produced during the previous year of 5,586,853.4 net tons.

Below is given a comparison of the production of coal and coke for the fiscal years 1919-1920, together with increases and decreases in net tons:

	1919	1920	Increase or Decrease	Change in Per Cent
Coal	84,980,552.2	89,590,274	5,586,853.4(I)	6.09 (I)
Coke	1,956,068	1,172,217	783,851(D)	40.06 (D)

From the above it will be observed that the production of coal for the year covered by the report was increased to the extent of 5,586,853.4 net tons over the year 1919, yet the production of coke during the same period decreased 783,851 net tons.

The estimated value of all coal produced during the fiscal year, according to the State Department of Mines, was $271,970,474.40; the value of the coal used in operating was $4,726,615.40 and the value of coal sold in local trade and to tenants was $5,225,208.40. It is also estimated that the value of coal used in coke ovens was $6,366,007, making the value of coal shipped from the mines $252,252,643.60. The value of coal mined by small country mines is estimated at $3,400,000. The Department of Mines estimates the value of all coal sold at $250,877,852 and of all coke sold at $7,455,300.12, a combined value of $258,333,152.12.

The change in value compared with the previous year is as follows:

Coal (Increase)	$66,364,424.44
Coke (Decrease)	5,278,702.56
Net increase in value of product	$61,085,721.88

Tonnage of originating geographical districts during 1920, compared with 1919, was as follows, in net tons:

District	1920	1919	Increase	Decrease
Panhandle	3,771,201.3	3,251,381.3	519,820.0	.....
Fairmont	14,408,782.1	12,671,426.9	1,737,355.2	.....
Preston-Barbour	6,084,564.6	5,163,129.4	921,435.2	.....
Elk Garden	2,722,079.4	2,854,929.3	.....	132,849.9
Mason	202,533.0	143,754.2	58,778.7	.....
Putnam	368,245.9	319,284.0	48,961.9	.....
Kanawha	11,615,019.4	11,463,159.7	151,859.7	.....
New River	14,502,352.5	13,272,574.6	1,229,777.9	.....
Logan	11,482,349.8	10,893,282.4	589,067.4	.....
Pocahontas	20,202,264.3	21,046,546.1	.....	844,281.7
Mingo	3,110,881.7	2,781,084.3	329,797.4	.....
Small mines	1,120,000.0	1,120,000.0	.....	.....
	89,590,274.0	84,980,552.2	5,586,853.4	977,131.6

During the year there were 3,542 mining machines in use at 1,027 mines, employing 34,547 men and producing 62,780,349 net tons of coal, which is 78.62 per cent of the total production of the state and which is 5,256,898.1 net tons more than the machine-mined coal during the fiscal year ended June 30, 1919.

The total acreage of coal mined during 1920 in West Virginia, based upon returns from the operators to the Department of Mines, was, as nearly as can be estimated, 9,618. The mines of the state averaged 182 days during the fiscal year as compared with 204 during the preceding year.

There were 75 coke plants operated in the state during the year, reporting a total of 10,359 ovens, of which number 4,232 were in actual operation, there being 6,127 ovens not in use during the year. There were 2,097,037.6 net tons of coal converted into coke, yielding 1,172,217 net tons of coke. The decrease in the production as compared with the previous year was 783,851 net tons, at a decreased valuation of $5,278,702.56. The average price per ton of coke was $6.36, a decrease of 15c. per ton compared with the preceding year.

During the year there were employed at the mines and coke ovens within the state an average of 97,426 persons, an increase over the previous year of 5,860. Of the total number employed there were: 14,385 pick miners, 29,425 machine miners, 5,122 machine runners and helpers, 28,237 inside laborers, 19,237 outside laborers, and 1,205 coke workers.

Counting superintendents, mine foremen, firebosses, store managers, store and office clerks, it would be safe to add five persons per mine employed in these capacities. Basing this estimate on 1,440 producing mines, it would make a total of 7,200 persons, or a grand total of employees directly connected with the operation of the mines of 104,626.

During the year the average price received by pick miners throughout the state for mining mine-run coal was 91c. as against 80c. in 1919. The average tonnage produced by each pick miner was 1,595, an increase of 51 tons over the fiscal year 1919. The average annual wage of pick miners (all pick miners included) was $1,451.45, which was an increase of $216.25 over that of 1919.

There were 320 lives lost in connection with the mining industry of the state during the year ended June 30, 1920. Of the above number, 287 were killed inside the mines and 33 outside, or a total decrease of 58 during that period, 44 of which decrease was inside and 14 outside.

Coal Shipments to Head of Lakes to June 1 Nearly Six Times Those of 1920

SHIPMENTS of bituminous coal to the Duluth-Superior docks this year have far exceeded in volume those made during the corresponding period last season. No doubt this is due in a large part to the earlier opening of navigation this year. Until June 1, 1920, only 276,400 tons had been received at the Head of the Lakes. This year 1,633,200 tons were on the docks June 1.

The smaller companies have received their quota of coal and are in infinitely better condition this year than last, according to a survey made for *Coal Age* by the Tomlinson Company, Duluth, vessel agents.

Coal receipts at Duluth and Superior from the opening of navigation to June 1, 1921, compared with the same period last year, are as follows, in net tons:

	1920		1921	
	Anthracite	Bituminous	Anthracite	Bituminous
Northwestern	8,700	66,800	30,200	232,800
Berwind	.....	30,500	.....	175,000
Pittsburgh	13,000	11,300	39,300	310,000
Carnegie	35,000	18,500	15,300	113,800
Hanna	31,500	16,400	10,300	97,300
Reeves	.....	.....	.....	5,500
Boston	.....	.....	.....	56,200
Inland	3,000	5,000	.....	114,800
Clarkson	.....	30,000	.....	98,000
Northern	7,000	.....	.....	80,000
Zenith Furnace	.....	.....	.....	34,000
Philadelphia & Reading	.....	.....	20,200	.....
Corporation	.....	70,000	.....	63,400
Reiss	6,300	7,200	11,000	88,000
Pursglove	.....	12,800	.....	6,200
Lehigh	70,000	.....	50,100	.....
Great Lakes	.....	7,900	.....	45,800
May receipts	174,500	276,400	176,400	1,521,200
Total to May	None	None	85,500	112,000
Totals	174,500	176,400	261,900	1,633,200

Anthracite receipts in excess of last year, 87,400 tons.
Bituminous receipts in excess of last year, 1,356,800 tons.

THE NEW YORK STATE COAL MERCHANTS ASSOCIATION of Albany has protested to Congress against government control or regulation of the coal industry.

SECRETARY OF INTERIOR FALL has endorsed the pending bill to authorize the Bureau of Mines to purchase coal for all government services, but suggests that the navy and coast guard be exempted and be allowed to purchase their own fuel.

THE EXECUTIVE COMMITTEE of the National Retail Coal Merchants Association had a two days' conference in New York on June 10 and 11 at which the Frelinghuysen bill, now being considered in Washington, was discussed. The committee also considered the Pennsylvania State tax bills. The meetings were executive and no statement was given out as to what action the commtitee took regarding the proposed legislation.

Byproduct Coke Plants in the United States

Manufacturers of byproduct coke in the United States May 1, 1921, as compiled by the U. S. Geological Survey:

Operator	Address	Name or Location of Works	Number and Kind of Ovens
Alabama			
Alabama By-Products Corp.	American Trust Bldg., Birmingham	Birmingham	50 Koppers
Gulf States Steel Co.	Brown-Marx Bldg., Birmingham	Alabama City	37 Koppers
Semet-Solvay Co.	Syracuse, N. Y.		
Also in Ill., Ky., Mich., N. Y., Ohio, Pa., W. Va.			
(Tenn. C. I. & R.R. Co.)	(Birmingham)	Ensley	240 Semet-Solvay
(Central Iron & Coal Co.)	(Holt)	Tuscaloosa	60 Semet-Solvay
Sloss-Sheffield Steel & Iron Co.	American Trust Bldg., Birmingham	Birmingham	120 Semet-Solvay
Tennessee Coal, Iron & R.R. Co.	Birmingham	Fairfield	434 Koppers
Woodward Iron Co.	Woodward	Woodward	80 Koppers 60 Wilputte 90 Koppers being rebuilt
Colorado			
Colorado Fuel & Iron Co.	Boston Bldg., Denver	Minnequa	120 Koppers
Illinois			
Chicago By-Product Coke Co.	Peoples Gas Bldg., Chicago	Chicago	100 Koppers building
Coal Products Mfg. Co.	Aurora	Joliet	35 Koppers 18 Wilputte
Illinois Steel Co. (Also in Ind.)	208 South La Salle St., Chicago	Joliet	280 Koppers
International Harvester Co.	606 South Michigan Ave., Chicago	South Chicago	88 Wilputte
North Shore Gas Co.	Waukegan	Waukegan	13 Semet-Solvay
St. Louis Coke & Chemical Co.	208 South La Salle St., Chicago	Granite City	80 Roberts 240 Roberts building
Semet-Solvay Co. (Also in Ala., etc.)	Syracuse, N. Y.		
(By-Products Coke Corp.)	(Chicago)	South Chicago	280 Semet-Solvay
Indiana			
Central Indiana Gas Co.	Muncie	Muncie	22 Klonne
Citizens Gas Co.	Majestic Bldg., Indianapolis	Langsdale	41 Semet-Solvay
		Prospect	100 United-Otto 40 Wilputte
Illinois Steel Co. (Also in Ill.)	208 South La Salle St., Chicago, Ill.	Gary	700 Koppers
Indiana Coke & Gas Co.	Terre Haute	Terre Haute	30 Gas Machinery 30 Koppers
Inland Steel Co.	South Dearborn St., Chicago, Ill.	Indiana Harbor	130 Koppers
Linton Gas Co.	Linton	Linton	3 Gas Machinery
Steel & Tube Co. of American (Also in Wis.)	111 W. Washington St., Chicago, Ill.	Indiana Harbor	120 Semet-Solvay
Kentucky			
Semet-Solvay Co. (Also in Ala., etc.)	Syracuse, N. Y.		
(Kentucky Solvay Coke Co.)	(Ashland)	Ashland	108 Semet-Solvay
Maryland			
Bethlehem Steel Co. (Also in Pa.)	Bethlehem, Pa.	Sparrows Point	300 Koppers
Massachusetts			
New England Fuel & Trans. Co.	111 Devonshire St., Boston	Everett	400 United-Otto
Michigan			
Ford Motor Co.	Dearborn	Dearborn	120 Semet-Solvay
Michigan Alkali Co.	Wyandotte	Wyandotte	54 United-Otto
Semet-Solvay Co. (Also in Ala., etc.)	Syracuse, N. Y.	Detroit	215 Semet-Solvay
Minnesota			
Minnesota By-Product Coke Co.	1000 Hamline Ave., St. Paul	St. Paul	65 Koppers
Minnesota Steel Co.	Morgan Park Station, Duluth	Duluth	90 Koppers
Zenith Furnace Co.	West Duluth	West Duluth	65 United-Otto
Missouri			
Laclede Gas Light Co.	1017 Olive St., St. Louis	St. Louis	56 Koppers 8 Piette building
New Jersey			
Camden Coke Co.	80 Park Place, Newark	Camden	150 United-Otto
Seaboard By-Product Coke Co.	Box 267, Jersey City	Kearny	165 Koppers
New York			
Donner-Union Coke Corp.	Box 193, Buffalo	Buffalo	150 Koppers
Empire Coke Co.	Geneva	Geneva	46 Semet-Solvay
Lackawanna Steel Co.	Buffalo	Lackawanna	94 United-Otto 282 Rothberg 60 Semet-Solvay
Semet-Solvay Co. (Also in Ala., etc.)	Syracuse	Solvay	40 Semet-Solvay
(Wickwire Steel Co.)	(Buffalo)	Buffalo	60 Semet-Solvay
Ohio			
American Steel & Wire Co.	Western Reserve Bldg., Cleveland	Cleveland	180 Koppers
Brier Hill Steel Co.	Youngstown	Youngstown	84 Koppers
Hamilton-Otto Coke Co.	Hamilton	Kokotto	100 United-Otto
McKinney Steel Co.	Perry-Payne Bldg., Cleveland	River Furnaces	204 Koppers
National Tube Co.	Frick Bldg., Pittsburgh, Pa.	Lorain	208 Koppers
Penn Iron & Coal Co.	Leader-News Bldg., Cleveland	Canal Dover	24 Roberts
Republic Iron & Steel Co.	Republic Bldg., Youngstown	Youngstown	143 Koppers
Semet-Solvay Co. (Also in Ala., etc.)	Syracuse, N. Y.		
(Otis Steel Co.)	(Cleveland)	Cleveland	100 Semet-Solvay
(Ironton Solvay Coke Co.)	(Ironton)	Ironton	60 Semet-Solvay
(Portsmouth-Solvay Coke Co.)	(Portsmouth)	Portsmouth	108 Semet-Solvay
Toledo Furnace Co.	Western Reserve Bldg., Cleveland	Toledo	94 Koppers
United Furnace Co.	Western Reserve Bldg., Cleveland	Canton	47 Koppers
The Youngstown Sheet & Tube Co.	Stambaugh Bldg., Youngstown	Youngstown	306 Koppers
Pennsylvania			
Allegheny By-Product Coke Co.	McKeesport	Glassport	120 United-Otto
Bethlehem Steel Co. (Also in Md.)	Bethlehem	Bethlehem	424 Koppers
		Lebanon	90 Semet-Solvay
		Steelton	120 Semet-Solvay 60 Koppers
Cambria Steel Co.	Widener Bldg., Philadelphia	Franklin	210 United-Otto 92 Koppers 190 Cambria-Belgian 60 Camb.-Belg. bldg.
		Rosedale	60 Cambria-Belgian 88 Semet-Solvay bldg.
Carnegie Steel Co.	Carnegie Bldg., Pittsburgh	Clairton	768 Koppers
		Farrell	212 United-Otto
Jones & Laughlin Steel Co.	Pittsburgh	Pittsburgh	300 Koppers
Philadelphia Suburban Gas & Electric Co.	Chester	Chester	40 Semet-Solvay
Pittsburgh Crucible Steel Co.	Pittsburgh	Midland	100 Koppers
Rainey-Wood Coke Co.	52 Vanderbilt Ave., N. Y. City	Swedeland	110 Koppers
Semet-Solvay Co. (Also in Ala., etc.)	Syracuse, N. Y.		
(American Manganese Mfg. Co.)	(Philadelphia)	Dunbar	110 Semet-Solvay
Rhode Island			
Providence Gas Co.	Turks Head Bldg., Providence	Sassafras Point	40 Koppers
Tennessee			
Chattanooga Coke & Gas Co.	James Bldg., Chattanooga	Alton Park	24 Semet-Solvay
Washington			
Seattle Lighting Co.	Stuart Bldg., Seattle	Seattle	20 Klonne
West Virginia			
Domestic Coke Corp.	Drawer 436, Cleveland, O.	Fairmont	60 Koppers
La Belle Iron Works	Steubenville, O.	Follansbee	94 Koppers
Semet-Solvay Co. (Also in Ala., etc.)	Syracuse, N. Y.		
(National Tube Co.)	(Pittsburgh, Pa.)	Benwood	120 Semet-Solvay
Wisconsin			
Milwaukee Coke & Gas Co.	Milwaukee	Milwaukee	120 Semet-Solvay
Steel & Tube Co. of America	First Nat'l Bank Bldg., Milwaukee	Mayville	108 United-Otto

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

ADDRESSING the American Institute of Banking at Minneapolis, June 16, Francis H. Sisson, vice president of the Guaranty Trust Co., of New York, said that the foundation for a revival of business was being soundly laid.

"Notwithstanding that there is still considerable 'frozen' credit in this country," Mr. Sisson said, "the principal economic problem is not the credit situation, although many, especially in agricultural districts, appear to think so. The chief obstacle to a general revival of business is the difficulty of developing an adequate demand for goods.

"Superficial consideration of that problem would suggest that the solution would lie wholly in the readjustment of prices. But lower prices in many lines have not aided materially in stimulating buying. As a matter of fact, in some instances, paradoxical though it may seem, the lower the price the less buying there has been. This curious antithesis has been due to the belief generally entertained that practically all commodity prices were certain to recede even more than they have, which has tended, naturally, to prolong the buyers' strike.

"It would be well, however, for the public to study recent price trends and their underlying factors, for many significant developments are occurring. For instance, the wholesale prices of several basic commodities, namely, wheat, corn, cotton, sugar, rubber, copper, lead, pig iron, petroleum and timber, increased 2½ per cent last month. That advance marked the end of a steady decline in the prices of these commodities from their peak, on June 1, 1920, which represented a fall of more than 54 per cent.

"While there is great unevenness in price levels and some commodities must undergo further liquidation, it is equally true that other prices have depreciated too much and are now beginning to ascend to their rightful level. It is essential for the public to realize that the turn has arrived in the prices of some commodities.

"Many buyers seem to be pursuing a hand-to-mouth purchasing policy in the hope that prices generally will recede to the pre-war level. Apparently they fail to understand that it is of little consequence at what level prices are stabilized—so long as they are stabilized, which is the important object. And stabilization will come when there is proper adjustment of various commodity prices one to another and between costs of production and distribution of commodities and their prices to consumers."

Rail Freight Movement Gains

An increase of 18,907 cars loaded with revenue freight during the week ended May 28, compared with the previous week, is shown by reports from the railroads. The total for the week was 787,237 cars. This was 110,970 cars less than for the corresponding week in 1920, but 23,476 more than were loaded during the corresponding week in 1919. Increase compared with the previous week were reported in all commodities except ore. The largest gain was made in grain and grain products, 9,085 cars more than the week before. A total of 164,870 cars were loaded with coal, which was 6,358 cars greater than during the preceding week but 9,700 less than during the same week last year.

Endicott-Johnson Co. Growing

The Endicott-Johnson Shoe Co. is about to increase operations by opening the west half of the Victory factory building at Johnston City. This half of the building has never been occupied. It has been used as a gymnasium and dance hall. The work of equipping it for manufacturing purposes began June 17.

Railroads Plan Shop Work

The railroads are preparing to begin intensive shop work on the repairing of their freight cars on July 1, the date of the abrogation of the national agreements. The Association of Railway Executives reports that there are about 400,000 idle freight cars at the present time, and 309,091 were in bad order on May 1. The total number of freight cars owned by the railroads is 2,400,000, all of which will be pressed into service if the shipping and traffic of the country pick up to normal. The companies also will be helped financially when the 12 per cent reduction in wages becomes effective July 1.

Southern Textile Mills Resume

The Putnam Cotton Mills, Eatonton, Ga., are preparing to reopen on full time. The Bothwell Hosiery Mills, of Chattanooga, Tenn., resumed operations with a full force of employees this week. Textile mills of Kinston, N. C., are working five days a week, an increase from the three-day schedule effective earlier in the year. The Kingsport plant of the Mead Fibre Co., Bristol, Tenn., began operations June 16. The plant, which employs several hundred men, had been closed down for several months because of lack of orders and general business depression.

Plant Operations Gaining

General Manager A. E. Swan states that production is steadily gaining at the plant of the Sharon Pressed Steel Co., Sharon, Pa., manufacturer of automobile parts and frames, according to the *Iron Age*. Every department is on part time, with average production between 35 and 40 per cent. The Oneida Motor Truck Co., Green Bay, Wis., which had been shut down since shortly after Jan. 1, reopened its plant on a 50 per cent production basis on June 6 to handle an accumulation of new business enabling a schedule of about 50 trucks per week for several months forward.

Bridgeport Plant to Employ 8,000

The General Electric Co. purposes making its plant at Bridgeport, Conn., one of the foremost in the country's industries, General Manager Joseph Clarke announces. He states that tentative schedules call for a payroll of 8,000 workers there compared with 1,200 at present. The company expects to employ 2,000 by next month.

Hercules Knitting Co. Expands

An addition to the plant of the Hercules Knitting Co. at Milwaukee, Wis., will be in operation by autumn. Part of the machinery has already arrived from Europe. The company has more than doubled its capacity by additions to its plant.

Extracts from George H. Cushing's Memorials on Coal Legislation

I.

To the Hon. J. S. Frelinghuysen, U. S. Senate:

If we were governed by the dictates of self interest alone we would agree with you that the bituminous coal industry should be stabilized; that all unnecessary mines be closed and hence competition in coal be destroyed; that buyers of coal be compelled by law to purchase their full annual requirements in twelve equal monthly installments and that thereby our cost of soliciting orders be more than cut in half; and that it be arranged by law that downward as well as upward fluctuations of prices of bituminous coal shall cease. But as Americans we cannot agree that this interest in the financial success of the coal industry is a proper function of government.

Also, if we should consult our pocketbooks alone, we must agree with you that the government should put upon our desks every Monday morning the amount of coal on hand, the amount produced during the preceding week and the prices obtained for that coal. It would give us the strongest possible hint as to how much coal we should produce at once—or fail to produce—where we could best look for a market, and what price we could reasonably expect to get.

However, there are much larger considerations, many of which we cannot discuss here. We are chiefly concerned, as an association of business men, with a need to keep faith with the public. We have said and reiterated that this industry served the public best—and itself least—when it was free from governmental restraint and dictation. We have made certain promises to the American people touching prices and supply which promises were hypothecated upon the retention of our economic freedom.

Further, we cannot overlook the fact that when the President and his party were seeking the suffrage of the electorate, they did so, in large measure, upon the slogan: "Less government in business and more business in government."

Neither the President nor his party has repudiated that slogan. The people have in no way indicated a change of mind or heart. We see no reason for reversing our views.

Others may do as they please about "less government in business." We take our stand behind the President and his party and on our pledge to the American people. Until all parties to that pledge are definitely released we have no choice but to oppose your bill.—June 13, 1921.

II.

To the Hon. A. B. Cummins, U. S. Senate:

In this memorial you are asked to consider one point. At the proper time, other points will be raised. These various memorials will raise issues which in the long run cannot be ignored. You may stand with the author of this bill and for the moment close your eyes to these issues. But that does not dispose of them. They are public questions which should be discussed before legislations. If that is not done, they will still be discussed.

The first question is: What is the real purpose of this bill?

The ready answer is: To give Congress and the people the facts about coal.

If it is information only that Congress wants, the Census Bureau has now all needed power in existing statutes to compel coal companies to supply the very data here demanded. Besides, the coal companies have been giving accurate information promptly for twenty-five years and promise to continue to do so.

Confronted by this fact, Senator Frelinghuysen says there is a need to have in the government someone to speak about and for the industry. That very thing was tried in 1917 and 1920, following which we had the only panics in coal history.

But if it is regulation that you are beginning, this proposed bill may be, as Senator Calder suggested, a necessary first step. However, Senator Frelinghuysen and Secretary Hoover emphatically deny that this bill starts regulation.

Your committee passed out this bill without a hearing. Presumably you know what its objective is. Would you mind telling the people what it is you are trying to do—to get information or to begin regulation? . . .

With so much now admitted, it is perfectly clear to the mind of the representatives of the coal industry that this is intended as the beginning of detailed regulation of coal by the government. Can you say anything to the contrary?

If the government wants information, we will supply it. But we warn you that its publication will do much to advance prices, but nothing to reduce them. Coal men will understand your reports and how to use them. The public must remain ignorant and defenseless.

But, if you wish to start regulation, then our president and membership desire me to say:

You may, in your optimism, believe that mere tables of figures—duly explained and interpreted—will end the disputes between capital and labor or between buyer and seller. Our practical experience teaches us differently. We know that, confronted by facts which show that a great industry is out of joint, you will want to set it right.

Your first effort, of course, will be to control the market—to control the product itself. When that is proved a failure unless you can control the plants which produce the coal, you must next try to control the competition between the plants. To do that you must eliminate some 3,000 unnecessary mines now in existence and then arrange that only the mines which are considered necessary may be opened in future.

When you launch upon that interesting undertaking you confront at once the fact that we have enough coal in the ground to supply all needs of a thousand generations but only one generation extant to consume it today. Before you can proscribe a new coal mine you must control all of the coal in the ground. That you may do in two ways only: (a) by buying from present owners all of the four trillions of tons of coal, or (b) by dispossessing those owners without compensating them. This last proposition is, then, the tremendous undertaking to which you, innocently, find yourself committed when you start regulation.

Our president and membership are amazed that you should enter upon such a project without public hearing. They believe that in fairness to themselves and the public you should now state clearly whether you merely want to gather information about coal or whether you want to start to regulate coal—and hence to enter upon the long program here outlined. Will you not dissolve our doubts as to the purpose of the government by giving to us and the public concretely the understanding which you have of this bill which led you to report it out without a hearing?—June 13, 1921.

III.

To the Hon. A. B. Cummins, U. S. Senate:

The president and the membership of the American Wholesale Coal Association, renewing their appreciation of the courteous treatment you have accorded to them, desire that I supplement my letter of June 13 by saying:

Laying aside, for the moment, all of the multitude of considerations which press for attention, we ask you to consider whether it is now wise to enact any such legislation as the proposed in S 1807.

We ask you to assume that the law may pass both houses of Congress, may have the approval of the President and may be administered righteously and faithfully for a period of years. A time must come when it must be subjected to the test of time and of experience. We ask you to try to project your mind into that future period. As you see matters today, are you convinced beyond a shadow of a doubt you will be able then to say that what is now proposed was a wise thing to do?

Before you try to answer that question, we ask you to consider carefully the times in which this legislation is presented for enactment. Only recently our business was wholly abnormal and artificial because of the need to make war. The demand for certain things was abnormally expanded; the demand for other things was all but suspended. Tomorrow we hope to be in a period of peaceful prosperity when our major interest will be in commerce and when the measure of our success and security will be the volume and diversity of our interests.

Today we are in the half-way stage between those poles

of national activity. Today the demand for the few things needed in war is suspended; the demand for the many things wanted in times of peace has not been revived.

In the time of war, prices were wholly out of joint; distribution was dislocated; transportation was in consequence demoralized; labor was thrown off its stride; capital in a new and strange atmosphere. . . .

Readjustment is naturally difficult because so much has to be done; because it takes time to destroy the artifices in business, to remove the confusion in capital, to allow labor to get its stride and to encourage the people to effect their own distribution of things.

Notwithstanding the handicaps already facing business, it is proposed in S. 1807 that the nation shall attempt by statute to fasten new artifices upon a suffering trade to predetermine the program—not only for the present but for all time—of coal and do it in advance of any knowledge of what demands the people may soon make upon that industry.

We ask you: Is this a wise thing to try to do? . . .

You must realize that coal is not an initial business. Its activities are measured exactly by the activities of the manufacturer, the carrier and the merchants. It is only active when those other interests play upon it. It follows the lead strings which they hold in their hands. It follows then that any man who can prescribe a program for the coal industry can with equal precision outline a program for all industry. Why are we favored and the others neglected?

Is it wise for the U. S. Senate to accept—without public hearing and protracted consideration—the haphazard recommendations of a few earnest men who may be more venturesome than wise?

If the same program is not to be applied to all industries we ask you: Is it wise to put shackles upon the coal industry which must remain the common servant of all industry? Is it possible to have a free industry and a bound coal trade?

We especially ask you to consider: It is obvious and trite that the only secure foundation of business is "confidence." Business men, of course, must have confidence in one another. Above everything they must have confidence in their government. . . .

Finally, we ask you: Do you believe that to compel the industry to supply information about what *has been done* will reduce—even by one—the number of unnecessary mines, cause the withdrawal from investment in mines of a single dollar, add one day's working time annually to mines which are now idle for the lack of demand, equalize as between the months the distribution of coal? We think not. Those are questions of supply and demand wholly beyond the reach of statutes.

Will it do anything to stop the quarrel between capital and labor in the coal fields? Will it do anything to alleviate the eternal struggle between producer and consumer or seller and buyer? We think not. Those are personal relations with which Government cannot safely concern itself. . . .—June 15, 1921.

IV.

To the Hon. A. B. Cummins, U. S. Senate:

There is no reason why we, as coal men, should object to giving any information which the government may want. We have no secrets to guard; no large profits to conceal.

That is, and bluntly, the information which is demanded will be of immediate and considerable monetary value to all coal companies. They alone will understand what the figures mean. They alone will know how to use them—to curtail output, to seek their market only where stocks are small, and to correct today's prices in the light of those paid yesterday. That same information will be of no service to the public because the people will not know what the figures mean. They will not know how to use them. It is a hug-handle proposition, a container with a handle on one side only, and coal companies can monopolize that handle.

So, the information is worth millions to the coal companies but not a penny to the public. Besides, if it is merely information which is wanted, we are informed that this law is wholly unnecessary. If the government has this power and if the proponents of this bill know that it has, we are justified in believing that they are not merely and needlessly duplicating their own past efforts. We are justified in looking beyond the mere demand for information to something else concealed in the bill. We find that concealed purpose in those provisions which show clearly an intention to begin detailed regulation of coal. We refer to the clauses calling for a study of statutory zoning, a study of statutory standardization of coal, the emergency powers given to the President and the injunction laid upon the Secretary of Commerce and the director of the Bureau of Mines to recommend annually any further legislation which, in their opinion, may be needed.

Frankly, we do not believe that this is an information bill at all. We believe it is the beginning of regulation.—June 16, 1921.

V.

To the Hon. A. B. Cummins, U. S. Senate:

The proposed coal measures pretend merely to get information. But the true purpose is to begin detailed regulation. . . .

When we expressed amazement at the audacity of this program those who are supposed to speak for this government said: "If you do not accept this mild regulation, you will get something far worse."

In private and in public meetings they have held that threat over us for two years. They have gone so far as to name the exact sources from which our punishment would come. We could not escape the conclusion that we were asked to enter a race to defeat the ambitions of certain radicals—who were named—and thus to prevent them from seizing the government and perverting its purpose.

These alleged spokesmen of the government have characterized regulation as socialism and bolshevism. In the same breath they have invited us to become socialists and bolshevists in order to escape both.—June 17, 1921.

Roderick Stephens Says Cost-and-Profit Reports Violate Constitutional Rights

RODERICK STEPHENS, president of the National Retail Coal Merchants' Association, has sent a letter to Senator Frelinghuysen explaining the reasons for the opposition of retail coal dealers to the Frelinghuysen bill.

Extracts from Mr. Stephens' letter, dated June 13, follow:

"We cannot reconcile the administration program of lower taxes and of governmental economy with a Federal stabilization program for the coal trade or any other trade or business, and remind you that the collection, tabulation and publication of the fact information desired by Secretary Hoover would require a large bureau, and if cost and profit information also is to be required, the bureau would necessarily become one of the most costly bureaus of any department of the entire government.

"While we earnestly doubt the efficiency of the proposed information service of the Department of Commerce, and seriously question whether such a service would substantially modify price or supply conditions resulting from the inability of the railroads, while in a state of lowered vitality, to meet the pressure of a belated demand, nevertheless, we are willing and have offered to supply, voluntarily, such information, exclusive of costs of doing business, and profits, as is required under your bill (S. 1807), in order that the plan may be perfected, made operative, and a practical determination of its true value, if it has any, may be obtained.

"We are opposed to the provision that all retail dealers may be required to compile statistics showing their business costs and profits, because we hold that this provision invades our constitutional rights; is likely to make available to our competitors, as well as to the public, information of no proper concern of theirs, and we doubt that proper consideration has been given the practical difficulties of this requirement.

"The retail coal dealers have not yet been heard on the subject of your bill, nor have they yet had an opportunity to clearly define their attitude toward legislation affecting their interests, and confidently believe that their request for such a hearing will not be unfavorably received by the Senate Committee on Interstate Commerce.

Operators Join Opposition to Coal Bill; Frelinghuysen Measure Made Unfinished Business of Senate

By Paul Wooton
Washington Correspondent

THE National Coal Association has come out as being unequivocally opposed to any legislation intended to exercise federal control over private business. It has been stated frequently that the Frelinghuysen coal stabilization bill was drafted by the National Coal Association. Officials of that organization have had difficulty in convincing certain elements in the coal business that this was not the case. The matter was cleared up last week, however, when Eugene McAuliffe authorized the National Coal Association to announce that it was he who drafted the bill in its original form. Some changes have since been made, notably that in Section 5, in which it is provided that no investigation of costs and profits is to be made unless authorized by the President. This change is said to have been made at the personal suggestion of Secretary Hoover.

The National Coal Association believes that the Frelinghuysen coal stabilization bill is a vicious example of an effort to regulate the coal industry. This action was taken after a meeting in Washington on June 15 of the Board of Directors of the association and its government relations committee. In addition to determining the policy of the association, an outgrowth of the meeting was a statement pointing out where the Frelinghuysen bill is regulatory. In this statement the bill is analyzed to show that it is highly inquisitorial in its nature. Arguments are advanced to show that the provisions of the bill, if enforced, would violate the Constitution in that it attempts to force the disclosure of information concerning matters which are not within the power of Congress to control; in that it violates the guaranty against unreasonable search and seizure; in that it attempts to delegate legislative power to the executive.

The statement also shows that the bill would allow the publication of private affairs. It is claimed that this legislation would entail great expense to the national government for its administration and would increase the cost of producing coal, and even then would fail to accomplish its ostensible purpose. Emphasis is given in the statement to the belief that this bill would be a forerunner and precedent for legislation of regulatory and paternal character which would apply to all lines of basic private industry.

Frelinghuysen to Press Bills for Passage

Senator Frelinghuysen on June 17 succeeded in having the stabilization bill and the seasonal rate bill made the unfinished business of the Senate. He expressed the most determined intention to press the bills to final passage at the earliest possible moment. He spoke almost regretfully of the action taken by the National Coal Association in determining to fight the stabilization bill. He expressed the opinion that the coal industry is making a vital mistake. He declared that the public is fully convinced that it is entitled to enough information as to the handling of coal to enable it to know how costs are made up.

The jobbers, through the American Wholesale Coal Association, have been directing their efforts against this legislation by a series of letters to Senators Frelinghuysen and Cummins as well as by a statement to the president of the Senate, urging that they be given the opportunity to be heard in opposition to the bill. [Extracts from these letters will be found on the preceding pages.] The retail dealers likewise are on record in opposition to the Frelinghuysen program.

Extracts from the National Coal Association's statement setting forth the objections of the bituminous coal operators to the stabilization bill are as follows:

"'Stabilization' of an industry necessarily means control of that industry. That the purpose of this legislation is not merely information but the ultimate regulation of the coal industry, is clearly indicated by many of its provisions.

"Private industry cannot voluntarily submit to legislation in which the deliberate purpose is announced, as it is here, to control ultimately every phase of such industry.

"The bill contains specific provisions for the 'investigation' of every conceivable branch and detail of the coal business as conducted by operator, wholesaler, or retailer.

"The greatest ingenuity has been exercised to make this 'investigation' of the most sweeping character. It descends even to such details as the terms of 'purchase,' which would include trade discounts, time of payment, etc., etc.

"In Section 19 of the bill the private 'books, papers, records, accounts, documents, or correspondence of any operator, dealer, or other person subject to the provisions of this act' are made 'subject to examination by the secretary or the director or their duly authorized agents.' Inasmuch as every consumer of coal using more than 100 tons per year is a 'person subject to the provisions of the act' and required to furnish information to the secretary or director (Section 16), it is obvious that each and every one of such consumers, including practically every manufacturing company, apartment or hotel owner, common carrier, public utility, etc., etc. (estimated to be more than half a million in number), as well as all operators, wholesalers, and dealers in coal (estimated to be sixty thousand in number), would be liable to have all of their books, records, correspondence, etc., examined under the provisions of this bill; and the heavy penalties imposed by the bill upon any person who refuses to produce such books, papers, records, correspondence, etc., for examination would apply equally to each and every one of those consumers as well as to those engaged in the coal industry (Section 19).

Unconstitutional Features Charged to Bill

"The bill makes possible the publication of private affairs.

"The bill violates the Constitution in that it attempts to force the disclosure of information concerning matters which are not within the power of Congress to control.

"The bill violates the Constitution in that it attempts to delegate legislative power to the Executive.

"In Section 5 it is left to the unguided judgment of the President as to when, if at all, 'costs and profits' shall be investigated by the secretary. The exercise of such power does not depend upon any finding of fact by the President. Such an unlimited discretion amounts to a delegation of legislative power to the President to make laws and violates the Constitutional provisions creating the Executive, Legislative, and Judicial departments of the government and confining their separate functions to them respectively.

"There is no reason whatever to believe that the passage of this bill would accomplish any such purpose as has ostensibly prompted its introduction into Congress.

"The bill, if passed, would be a forerunner and precedent for similar paternal and regulatory legislation with reference to every line of private business.

"If Congress has the power to enact legislation of this character concerning the coal industry and all consumers of coal, it must have the same power to enact similar legislation with reference to other lines of private business.

"This bill is directly contrary to the announced policy of 'less government in business' which has made such a popular appeal to the people.

"The bituminous operators, like those engaged in other branches of the industry, have offered voluntarily to furnish all proper commercial information to the government.

"The bituminous operators join with the other branches of the industry in announcing their opposition to this pending legislation, which is both regulatory and inquisitorial in its character and singles out the coal industry as one for particular legislative direction and control."

Reading Decree Filed; Trustees Named

COUNSEL for the Reading Company last week filed with the U. S. District Court a form of decree in conformity with the decision of the court for carrying out the segregation plans. The decree is lengthy and makes no change from the program laid down by the court in its decision.

The Central Union Trust Company, of New York, was named as trustee to take over the Lehigh & Wilkes-Barre Coal Co. stock owned by the Central Railroad of New Jersey. Newton P. Fairbanks, of Springfield, Ohio, and Joseph B. McCall, of Philadelphia, were appointed trustees to hold the stock of the new corporation to be formed to take over the stock of the Philadelphia & Reading Coal & Iron Co. R. E. McCarty, of Pittsburgh, and C. S. W. Packard, of Philadelphia, were named trustees of the stock of the Central Railroad of New Jersey owned by the Reading Company.

The appointments were made by the court. The decree, entered June 6, provided that the stock of the new corporation was to be issued to a trustee or trustees and that certain voting powers were to be given them. The purpose of placing the stock of the Jersey Central in the hands of trustees was to keep the shares intact until a favorable market arrived for their sale.

Senator Edge Warns Against Regulating Business Out of Existence

SENATOR EDGE, of New Jersey, who as a member of the Calder reconstruction committee last session investigated coal, in a speech in the Senate against the packer control bill opposed over-regulation of business. He said that he had been trying to ascertain the reasons for continued high prices of anthracite, as it was the only staple product of general and large consumption that has continually gone up in price since the war and has shown "absolutely no response to the general deflation throughout the country." He said, however, that the condition would not be helped by nationalization of the industry. He favored trusting the people to see if they go too far in profiteering and over-profits. "Do not let us regulate them out of business," he asked.

Form Committee to Avert Bankruptcy Proceedings Against Old Tidewater Exchange

DEBTORS and creditors of the old Tidewater Coal Exchange have formed a protective committee for the purpose of endeavoring to forestall the bankruptcy proceedings pending against the old exchange in the Federal courts. In addition the committee will endeavor to secure the right of debtor shippers to an adjustment of their accounts at a just rate for the coal; to set off unsettled claims of debtor shippers against the railroads for confiscations, diversions, double freight collections, railroad demurrage, etc.; to obtain the co-operation of shippers in such action as may be necessary to have the railroads assume and pay all the liabilities of the exchange after collecting a reasonable and just amount from the debtor shippers, and to preserve the cash assets, which are in danger of dissipation and waste if the proposed policy of petitioning creditors is pursued.

The committee is composed of Howard Adams, of the S. M. Hamilton Coal Co.; Kenneth W. McNeil, of Archibald McNeil & Sons Co.; Roy B. Ayers, of the Shawnee Fuel Co.; R. W. Wigton, Morrisdale Coal Co., and Robert S. Hill, of Madeira, Hill & Co.

The protective committee will invite the creditors' committee to a conference at which the matter is to be discussed.

May Anthracite Shipments 173,570 Tons Less Than Those of April

SHIPMENTS of anthracite in May, as reported to the Anthracite Bureau of Information, amounted to 5,793,895 gross tons, a decrease as compared with the preceding month of April of 173,570 tons, and 361,983 tons less than tonnage shipped during May of last year, when 6,155,878 tons were shipped to market and reflected the benefit of the termination of the switchmen's strike.

Shipments by originating carriers, in gross tons, were:

	May, 1921	April, 1921
Philadelphia & Reading	1,108,476	1,123,585
Lehigh Valley	1,027,688	1,102,965
Jersey Central	544,716	537,822
Lackawanna	915,191	929,271
Delaware & Hudson	753,039	812,967
Pennsylvania	409,027	416,847
Erie	630,574	630,471
New York, Ontario & Western	153,809	128,684
Lehigh & New England	251,375	284,853
Totals	5,793,895	5,967,465

No Unlawful Combination of Coal Dealers in Union County, New Jersey

RETAIL coal dealers of Union County, New Jersey, have been absolved from suspicion of maintaining an unlawful combination for the purpose of fixing and maintaining the retail price of anthracite coal by the May Grand Jury of that county, which made a presentment to the court in Elizabeth on June 9. The presentment was the result of a probe following a request by the Elizabeth Chamber of Commerce to "investigate and ascertain if an unlawful combination exists among retail coal dealers of the county for the purpose of maintaining coal prices and exacting excessive profits."

IN A SUPPLEMENTAL STATEMENT to the Senate Interstate Commerce Committee in the railroad investigation, Julius Kruttschnitt, of the Southern Pacific R.R., says the chief material item in transportation is coal. An estimate by twenty-seven representative railways of the probable reduction in coal prices during the next twelve months as compared with the prices prevailing in May, 1921, was 6.4 per cent.

Bituminous Coal Loaded Into Vessels at Lake Erie Ports During Season to End of May*

(In Net Tons)

Ports	Railroads	1921 Cargo	1921 Fuel	1921 Total	1920 Cargo	1920 Fuel	1920 Total	1919 Cargo	1919 Fuel	1919 Total
Toledo	Hocking Valley	821,739	20,518	842,257	126,136	1,859	127,995	979,882	29,459	1,009,341
	Toledo & Ohio Central	196,039	5,342	201,381	68,825	4,959	73,781	219,262	6,036	225,298
	Baltimore & Ohio	402,239	10,629	412,868	101,844	10,270	112,114	242,199	5,293	247,492
Sandusky	Pennsylvania	223,214	6,060	229,274	64,544	995	65,539	312,597	8,919	321,516
Huron	Wheeling & Lake Erie	424,250	11,132	435,382	301,890	25,451	327,341	396,647	12,442	409,089
Lorain	Baltimore & Ohio	625,935	24,727	650,662	387,512	43,496	431,008	647,912	33,654	681,566
Cleveland	Pennsylvania	512,323	20,143	532,466	38,664	6,522	45,186	458,111	60,129	518,240
	Erie	126,769	4,260	131,029	.....	.....	.....	.....	.....	.....
Fairport	Baltimore & Ohio	.....	.....	.....	.....	.....	.....	10,956	10,022	20,978
Ashtabula	New York Central	462,355	16,887	479,242	48,660	21,415	70,075	455,339	26,711	482,050
	Pennsylvania	532,897	17,128	550,025	51,344	16,138	67,482	476,938	16,364	493,302
Conneaut	Bessemer & Lake Erie	196,091	1,911	198,002	299,800	9,360	309,160	318,868	919	319,787
Erie	Pennsylvania—West	235,231	7,392	242,623	680	.....	680	155,144	7,959	163,103
	Pennsylvania—East	43,585	5,509	49,094	7,405	12,456	19,861	40,179	2,099	42,278
Totals		4,802,667	151,638	4,954,305	1,497,304	152,918	1,650,222	4,714,034	220,006	4, 34,040

* Compiled by Ore & Coal Exchange, Cleveland, Ohio; H. M. Griggs, Manager.

Mingo Inquiry Probably Will Not Be Made

OPPOSITION having developed to the proposed Senate investigation into the strike troubles in the Mingo County, West Virginia, coal fields, that inquiry probably never will be made. The resolution which provided for it was denied passage on the objection of Senator Myers of Montana following arguments against the investigation made by Senators Underwood, of Alabama, and Overman, of North Carolina. They took the position that as the troubles had subsided there was no need for the Senate to expend the money which such an inquiry would entail.

The resolution authorizing the investigation came up in the Senate on Monday, June 13, and was debated during the "morning hour." Senator Johnson asked for further consideration of the resolution, of which he is the author, but Senator Myers objected, and it went over, subject, however, to further consideration whenever again called up. Senator Sutherland, of West Virginia, said the investigation probably would be helpful in getting the operators and unions around the conference table.

Senator Johnson had other reasons. Economic questions, he declared, were involved, as coal production was curtailed. He urged also that the law was being maintained by the use of "force"—a condition justifying inquiry. Senator Underwood doubted if any affirmative action by Congress would result from the investigation and did not think the inquiry was justified at this time.

Senator Overman saw no reason for interfering with the state or airing the troubles of the miners and operators. The investigation which a house committee conducted several years ago into the coal strike in Colorado was regarded as a strong argument against making an investigation of a like character at the present time. Senator Myers then objected to the resolution and it went over.

Magruder Succeeds Howe as Commissioner of Tidewater Coal Exchange

THE Tidewater Coal Exchange, Inc., handling bituminous coal at the ports of New York, Philadelphia and Baltimore, has elected R. A. C. Magruder as commissioner, effective June 15, 1921, in succession to J. W. Howe, who recently resigned after four years of service with the present exchange and its predecessor. Mr. Magruder joined the staff of the previous Tidewater Coal Exchange in Washington while it was being organized in 1917 and has for the past year been assistant commissioner of the present exchange. He was connected with the Southern Ry. in various capacities for twenty-one years and during the four years of his service with the Tidewater Coal Exchanges has become well and favorably known to the shippers and consignees of tidewater bituminous coal.

10,000 Miners of Pennsylvania Coal Co. in Pittston District Strike Again

A GENERAL strike in the Pittston district of Pennsylvania, affecting ten collieries and 10,000 men of the Pennsylvania Coal Co., was ordered by the general grievance committee, effective Monday, June 20. The men charged that the company was not paying the wage scale ordered by the Anthracite Wage Commission, and that there was no set scale of wages for company men, the rate varying with the colliery. Last July the mine workers of this company struck because the company would not abolish the contract system of mining. They were out eleven weeks that time.

Will Meet at Salt Lake City, Utah

ALL plans have been completed for the annual meeting of the Rocky Mountain Coal Mining Institute, which will be held in Salt Lake City, Tuesday, June 28. A special pullman will leave Denver for the place of meeting June 27, stopping at Rock Springs, where the mines and other points of interest will be visited.

The technical sessions will be held in the Utah Hotel, Salt Lake City, Wednesday, June 29, addresses to be delivered including those by A. C. Watts, of the Utah Fuel Co.; D. C. McKeehan, of the Union Pacific Coal Co.; Benedict Shubart, of Lindrooth & Shubart Co., Denver; E. R. Gibson, United States Fuel Co., and R. Dawson Hall, *Coal Age*.

Senate Considers Seasonal Freight Bill; Coal Stabilization Measure to Follow

COAL legislation is now before the Senate for action, the bill providing for seasonal freight rates on coal having been taken up June 17 on motion of Senator Frelinghuysen, to be followed by the coal-stabilization bill. Debate on the seasonal rate bill began June 20, Senator Frelinghuysen opening with an elaborate discussion of the coal situation, supplemented by numerous charts placed around the walls of the Senate chamber. The determination to give the rate bill precedence over the stabilization bill was due to the desire to hasten action looking to reduced freight rates, it being felt that the regulatory bill could follow consideration of the rate bill without losing time.

Senator McLean, of Connecticut, in closing the debate on the packer control bill, which was passed, said that while he favored investigation and publicity he was against price fixing. He said the packer legislation would be followed by regulation of coal "until instead of a country where a free man can do business under economic liberties and natural rights to which he is entitled, the government will have a series of industrial graveyards, and it will lead to abolition of private property."

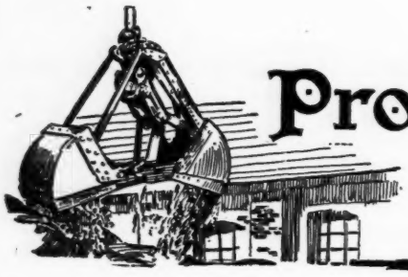
In a speech June 20 Senator Frelinghuysen declared that abuses in the coal trade and uneconomic conditions surrounding it required relief measures and expressed impatience over objection by coal interests.

AN ITEM IN *Coal Age*, June 16, announcing the publication by the Central Pennsylvania Coal Producers Association of a map of bituminous collieries in Pennsylvania neglected to state the price of the map. The price is $20.

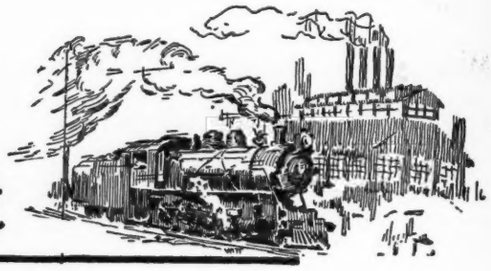
Over Two-Thirds of British Miners Vote for Strike Continuance

SO PERSISTENTLY optimistic are the British people that it is difficult to size up the coal strike situation. The mine workers' ballot showed 183,827 for acceptance of the terms of the mine owners and 432,511 for their rejection. The majority was 21,669 above the required two-thirds. The federation has a membership of 957,610, and of these probably 10 per cent are boys under sixteen who are not entitled to vote. As only 616,338 votes were cast, about 29 per cent of the voters must have failed to vote. Wales and Durham strongly opposed acceptance.

The leaders are said to have been disappointed at the result of the ballot, but on learning the outcome, June 17, they notified the government that the strike would be continued. On the following day Lloyd George announced the government's offer of a subsidy of £10,000,000 would be withdrawn that night if it had not been accepted by that time, and it was accordingly withdrawn. It is announced that the men were then preparing to go to work, ignoring the strike decision. It is a self-contradictory situation and it would be bold indeed to form a conclusion. In view of the past optimism in Great Britain it would be well to await the outcome of the issue and prophesy after instead of before the event. Mines in several districts were opened Monday, June 20, but few men returned to work.



Production and the Market



Weekly Review

PRODUCTION of bituminous coal is being maintained around 8,000,000 net tons a week by the strenuous efforts of shippers. It is with difficulty that this coal is being forced on the market, price recession giving evidence of the selling pressure being exerted. *Coal Age* index of spot prices is 92, a drop of 3 points from 95 the previous week. Exports and shipments to Lake Erie ports for transshipment by boat and storage on the Upper Lake docks represent the only steady outlets now open to the trade, and it is only the Northern and Middle Appalachian fields that are in position to participate in these markets.

The situation at the Lake front is steadily drifting into a deadlock. Accumulation of coal in cars at Lake Erie ports now exceed 1,300,000 tons and were it not that, contrary to usual practice, the Steel Corporation boats are taking coal on the up trip, shipments by water would fall off for lack of boats. Steamers are now being tied up in Duluth Harbor because ore is not being shipped down and it does not pay to operate the boats with a one-way cargo of coal.

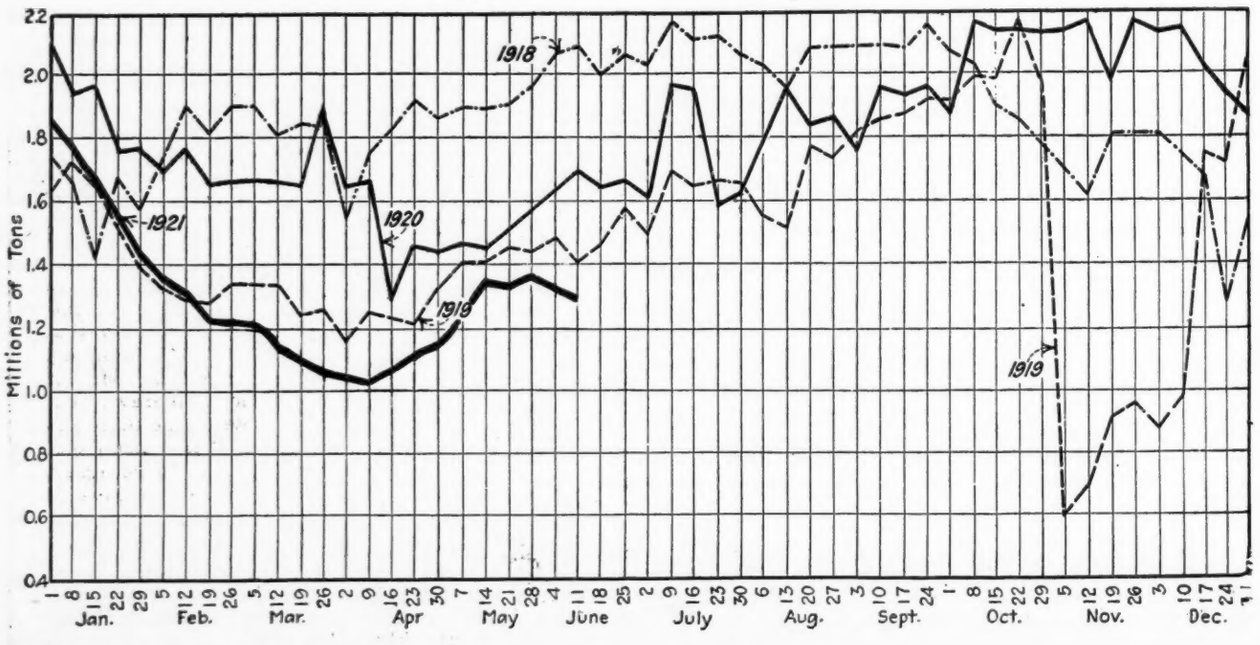
Exports offshore are being maintained. In the first half of June foreign shipments through Hampton Roads were, in round numbers, 700,000 net tons, compared with 1,217,000 during the month of May, while total dumpings at this port were 1,300,000 net tons to June 15, compared with 2,030,000 net tons during May. The striking thing about the statistics of May exports is the disclosure of the movement to the United Kingdom—"coal carried from here to Newcastle"—344,000 net tons. This figure bears out the estimate made in this review a week ago that our export trade would benefit to the extent of 1,000,000 net tons by the end of June as a result of the British strike.

Midwest Gloomy; Glutted with Eastern Coal

While the Eastern bituminous fields are pegging along at a rate only slightly better than half of normal, the Middle West is in deep gloom. The steam market is dead and 400,000 tons of slack piled up at mines in Southern Illinois is reported to be taking fire. Free coal is abundant, Eastern shippers crowding coal at bargain prices in this market on top of local offerings. Last year's crop of new coal companies are getting a taste of adversity. For the most part these parvenus have faded away and such as remain are investing last year's profits in this year's losses. The sad part about it is that there will be a new crop next time to upset business by extortionate prices as in 1917 and 1920.

Production of bituminous coal at 8,000,000 tons a week represents between 70 and 80 per cent of the best that could be expected if industry were not depressed,

Daily Average Production of Bituminous Coal*



*From weekly report of Geological Survey.

for 10,000,000 tons a week, or 520,000,000 tons a year, would represent prosperity in the soft coal trade. In view of this, the bituminous-coal industry has no such cause for complaint as for instance, iron and steel, operating at less than 30 per cent of normal.

Anthracite, on the other hand, is going full blast. Production between 1,900,000 and 2,000,000 net tons a week represents the best this field can do. Steam sizes of hard coal are suffering from lack of demand and as produced are largely going into storage, but domestic sizes are readily moved. Production from January to date is 37,700,000 net tons, a figure exceeded since 1913 only in the war years of 1917 and 1918. There are signs, however, that demand for household sizes is becoming less urgent.

BITUMINOUS

Weekly production of soft coal remains around the 8,000,000-ton mark with the output for the week ended June 11 at 7,945,000 net tons, a decrease of 221,000 tons as compared with the last preceding full-time week. On Monday and Tuesday, June 13 and 14, loadings were 52,778 cars, indicating little if any change in the rate of production.

Production of bituminous coal during May, 1921, was approximately 33,255,000 tons, an average of 1,316,000 tons per working day. The following data from the Geological Survey show the output of coal in May during the past eight years and the cumulative production in each year to May 31:

PRODUCTION OF BITUMINOUS COAL
(In Net Tons)

Year	May	Calendar Year to May 31.
1913	37,205,000	188,000,000
1914	28,551,000	173,000,000
1915	30,938,000	159,000,000
1916	38,804,000	208,000,000
1917	47,086,000	226,000,000
1918	50,443,000	231,000,000
1919	37,547,000	176,000,000
1920	38,993,000	213,000,000
1921	33,255,000	162,000,000

Though much below the output in May in any recent year of active business, the May, 1921, production surpassed both May, 1914, and May, 1915. The cumulative output during the first five months of 1921 was 69,000,000 tons behind 1918, and 51,000,000 tons behind 1920, both years of active business. It was, however, only 11,000,000 tons behind the year of depression, 1914. Compared with the first five months of 1915, when coal consumption had not begun to feel the stimulus of the Allied War orders, 1921 shows a gain of 3,000,000 tons.

The Northern and Middle Appalachian output declined during the first week of June because of the observance of Memorial Day, the total being 4,372,000 tons, as against

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

	Market Quoted	May 17, 1921	June 7, 1921	June 14, 1921	June 21, 1921†
Low-Volatile, Eastern					
Pocahontas lump	Columbus	$5.60	$5.75	$5.75	*$5.00@$6.00*
Pocahontas mine run	Columbus	3.60	3.30	3.45	*3.25@ 3.50*
Pocahontas screenings	Columbus	....	2.65	2.40	2.25@ 2.50
Pocahontas lump	Chicago	5.25	5.25	5.25	**5.50@ 5.75**
Pocahontas mine run	Chicago	4.00	3.15	3.15	2.75@ 3.50
*Smokeless mine run	Boston	6.40	6.45	5.95	**6.00@ 6.25**
Clearfield mine run	Boston	2.40	2.35	2.25	1.85@ 2.60
Somerset mine run	Boston	2.90	2.95	2.75	*2.15@ 3.00*
Pool 1 (Navy Standard)	New York	3.40	3.50	3.45	3.25@ 3.65
Pool 1 (Navy Standard)	Philadelphia	3.25	3.35	3.35	*2.95@ 3.50*
Pool 1 (Navy Standard)	Baltimore	3.30	3.30	3.20	*2.80@ 3.10*
Pool 9 (Super.Low Vol.)	New York	2.80	2.85	2.85	2.75@ 2.95
Pool 9 (Super.Low Vol.)	Philadelphia	2.90	2.95	2.95	*2.65@ 3.00*
Pool 9 (Super.Low Vol.)	Baltimore	3.00	2.95	2.85	*2.60@ 2.75*
Pool 10 (H.Gr. Low Vol.)	New York	2.55	2.50	2.45	**2.35@ 2.60**
Pool 10 (H.Gr. Low Vol.)	Philadelphia	2.70	2.60	2.55	*2.25@ 2.60*
Pool 10 (H.Gr. Low Vol.)	Baltimore	2.55	2.35	2.40	*2.35*
Pool 11 (Low Volatile)	New York	2.15	2.15	2.15	**2.25@ 2.45**
Pool 11 (Low Volatile)	Philadelphia	2.45	2.35	2.35	*2.00@ 2.20*
Pool 11 (Low Volatile)	Baltimore	2.30	2.10	2.10	2.00@ 2.20
High-Volatile, Eastern					
Pool 34 (54-64) (H.Vol. Gas and Steam)	New York	2.00	1.95	1.90	**1.90@ 2.05**
Pool 34 (54-64) (H.Vol. Gas and Steam)	Philadelphia	2.10	2.05	2.00	*1.70@ 2.00*
Pool 34 (54-64) (H.Vol. Gas and Steam)	Baltimore	1.90	1.85	1.85	*1.75*
Pittsburgh sc'd. gas	Pittsburgh	2.70	2.55	2.75	*2.40@ 2.60*
Pittsb'gh mine run (steam)	Pittsburgh	2.10	1.95	1.95	*1.75@ 1.90*
Pittsb'gh slack (gas)	Pittsburgh	2.00	1.75	1.65	*1.55@ 1.65*
Kanawha lump	Columbus	3.40	3.50	3.50	*3.25@ 3.65*
Kanawha mine run	Columbus	2.30	2.25	2.20	*2.00@ 2.25*
Kanawha screenings	Columbus	....	1.35	1.25	*1.10@ 1.25*
Hocking lump	Columbus	3.30	3.40	3.25	*3.00@ 3.25*
Hocking mine run	Columbus	2.20	2.15	2.15	2.00@ 2.25
Hocking screenings	Columbus	....	1.20	1.20	1.10@ 1.30
Pitts. No. 8 lump	Cleveland	$3.15	$3.25	$3.25	$3.00@$3.50
Pitts. No. 8 mine run	Cleveland	2.30	2.30	2.10	*2.00@ 2.15*
Pitts. No. 8 screenings	Cleveland	....	1.65	1.40	*1.15@ 1.35*
Midwest					
Franklin, Ill. lump	Chicago	3.70	3.65	3.55	**3.25@ 4.05**
Franklin, Ill. mine run	Chicago	3.25	3.00	3.00	*2.25@ 3.50*
Franklin, Ill. screenings	Chicago	2.55	2.00	2.00	*1.25@ 2.65*
Central Ill., lump	Chicago	3.25	3.15	3.15	*2.25@ 3.00*
Central Ill., mine run	Chicago	2.60	2.50	2.50	*2.00@ 2.75*
Central Ill., screenings	Chicago	1.90	1.65	1.60	1.00@ 2.25
Ind. 4th Vein lump	Chicago	3.50	3.15	3.15	*2.50@ 3.25*
Ind. 4th Vein mine run	Chicago	3.10	2.75	2.60	*2.25@ 2.75*
Ind. 4th Vein screenings	Chicago	2.25	•1.75	1.75	*1.25@ 2.15*
Ind. 5th Vein lump	Chicago	3.25	3.00	3.00	*2.25@ 3.25*
Ind. 5th Vein mine run	Chicago	2.50	2.50	2.45	*2.00@ 2.75*
Ind. 5th Vein screenings	Chicago	2.20	1.85	1.85	*1.25@ 2.15*
Standard lump	St. Louis	2.50	2.15	2.15	2.00@ 2.25
Standard mine run	St. Louis	1.90	1.75	1.75	1.65@ 1.85
Standard screenings	St. Louis	1.75	1.15	.95	*.75@ 1.00*
West Ky. lump	Louisville	2.65	2.55	2.55	2.30@ 2.75
West Ky. mine run	Louisville	2.00	2.10	1.90	**1.75@ 2.25**
West. Ky. screenings	Louisville	1.90	1.50	1.50	*1.25@ 1.65*
South and Southwest					
Big Seam lump	Birmingham	3.70	3.65	3.80	*3.55@ 3.75*
Big Seam mine run	Birmingham	2.95	2.60	2.50	2.25@ 2.75
S. E. Ky. lump	Louisville	3.75	3.70	3.65	3.50@ 3.75
S. E. Ky. mine run	Louisville	2.60	2.35	2.25	2.00@ 2.50
S. E. Ky. screenings	Louisville	1.70	1.35	1.45	1.10@ 1.75
Kansas lump	Kansas City	5.00	5.25	5.25	5.25
Kansas mine run	Kansas City	4.40	4.40	4.40	4.25@ 4.50
Kansas screenings	Kansas City	3.75	3.25	3.15	3.15

* Gross tons, f.o.b. vessel, Hampton Roads.
† Advance over previous week shown in **heavy type**, declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

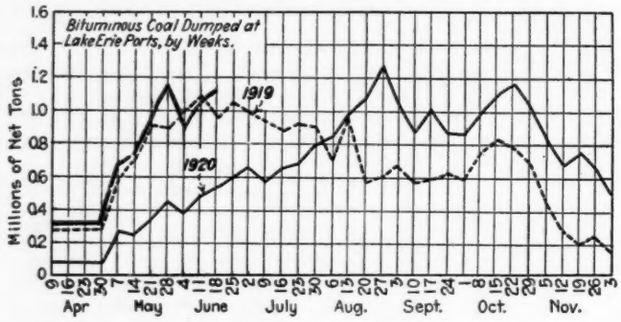
	Market Quoted	Freight Rates	June 7, 1921		June 14, 1921		June 21, 1921†	
			Independent	Company	Independent	Company	Independent	Company
Broken	New York	$2.61	$7.85@$8.15	$7.30@$7.75	$7.85@$8.15	$7.30@$7.75	$7.85@$8.15	$7.30@$7.75
Broken	Philadelphia	2.66	7.90@ 8.20	7.45@ 7.85	7.90@ 8.20	7.45@ 7.85	7.90@ 8.20	7.45@ 7.85
*Broken	Chicago	5.62	12.65	12.40	12.65	12.40	**12.75**	**12.50**
Egg	New York	2.61	7.85@ 8.50	7.30@ 7.75	7.85@ 8.50	7.30@ 7.75	7.85@ 8.50	7.30@ 7.75
Egg	Philadelphia	2.66	7.90@ 8.20	7.45@ 7.85	7.90@ 8.20	7.45@ 7.85	7.90@ 8.20	7.45@ 7.85
*Egg	Chicago	5.62	12.50	12.35	12.50	12.35	**12.60**	**12.45**
Stove	New York	2.61	8.15@ 8.60	7.60@ 8.10	8.15@ 8.75	7.60@ 8.10	*8.15@ 8.60*	7.60@ 8.10
Stove	Philadelphia	2.66	8.15@ 8.60	7.80@ 8.20	8.15@ 8.60	7.80@ 8.20	8.15@ 8.60	7.80@ 8.20
*Stove	Chicago	5.62	13.10	12.70	13.10	12.70	**13.20**	**12.80**
Chestnut	New York	2.61	8.15@ 8.50	7.60@ 8.10	8.15@ 8.50	7.60@ 8.10	8.15@ 8.50	7.60@ 8.10
Chestnut	Philadelphia	2.66	8.15@ 8.50	7.75@ 8.20	8.15@ 8.50	7.75@ 8.20	8.15@ 8.50	7.75@ 8.20
*Chestnut	Chicago	5.62	12.85	12.60	12.85	12.60	**12.95**	**12.70**
Pea	New York	2.47	6.00@ 6.20	5.85@ 6.20	5.00@ 6.00	5.85@ 6.20	**5.50@ 6.00**	5.85@ 6.20
Pea	Philadelphia	2.38	5.75@ 6.25	6.10	5.50@ 6.00	6.10	5.50@ 6.00	6.10
*Pea	Chicago	5.62	10.80	10.70	10.80	10.70	**10.90**	**10.80**
Buckwheat No. 1	New York	2.47	3.00@ 3.25	3.50	2.75@ 3.00	3.50	2.75@ 3.00	3.50
Buckwheat No. 1	Philadelphia	2.38	3.00@ 3.35	3.50	3.00@ 3.25	3.50	*2.75@ 3.00*	3.50
Rice	New York	2.47	2.00@ 2.25	2.50	1.70@ 2.25	2.50	1.70@ 2.25	2.50
Rice	Philadelphia	2.38	2.00@ 2.50	2.50	2.00@ 2.25	2.50	*1.75@ 2.25*	2.50
Barley	New York	2.47	1.00@ 1.40	1.50	.75@ 1.10	1.50	**.75@ 1.25**	1.50
Barley	Philadelphia	2.38	1.25@ 1.50	1.50	1.00@ 1.25	1.50	1.00@ 1.25	1.50
Birdseye	New York	2.47	.....	2.50	.....	2.50	....	2.50

* Prices and freight rates net tons; quotations f.o.b. cars, Chicago. † Advances over previous week shown in **heavy type**, declines in *italics*.

5,273,000 for the preceding week. However, the daily rate of production was well maintained and this region contributed about 65 per cent of the total output for the country during this period, as a result of heavy export and Lake shipments.

Export business was the mainstay of the market during the last week. Even this demand was slightly weakened, for a time at least, by the prospect of an early settlement of the British strike. However, this does not now appear to be imminent and it is expected that buying will be resumed.

Lake shipments are piling up at the lower docks despite continued heavy dumpings, which for the week ended June 20 were 1,111,773 net tons cargo and vessel fuel. The movement for the season now stands at 8,015,047 tons, compared with 3,011,378 tons for the same period of 1920.



All-rail movement of soft coal to New England increased slightly during the week ended June 11, but anthracite shipments declined, as shown in the following table:

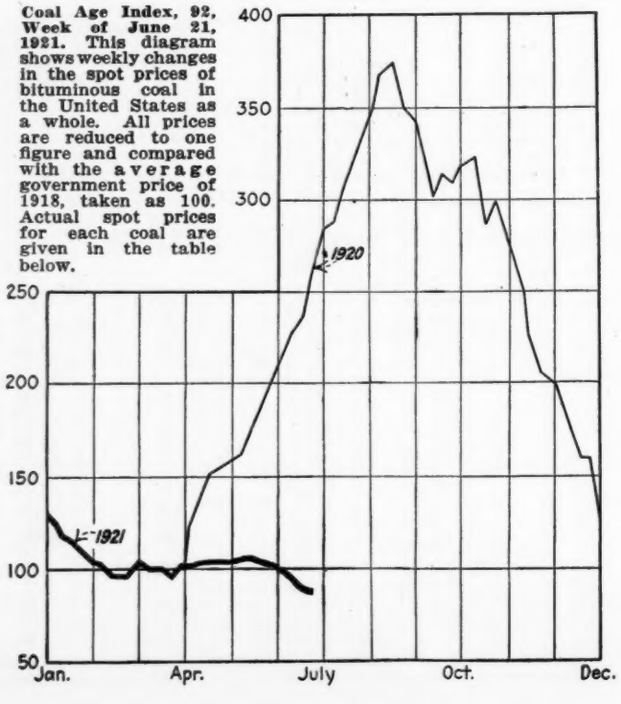
CARS OF COAL FORWARDED OVER THE HUDSON TO EASTERN NEW YORK AND NEW ENGLAND

Week Ended	1921 Anthracite	1921 Bituminous	1920 Anthracite	1920 Bituminous
June 4	3,067	3,052	3,607	3,562
June 11	3,030	3,143	3,432	2,817

ANTHRACITE

Production of hard coal during the week ended June 11 was 1,963,000 net tons, according to the Geological Survey. This compares favorably with the figure of 1,988,000 tons for the last preceding full-time week, that of May 28. Demand for domestice sizes continues satisfactory, but steam coals are even weaker than last reported.

Revised estimates place the total production of anthracite for the month of May at 7,479,000 net tons, an average of 300,000 net tons per working day. From the following table it will be seen that although this was smaller than in any May since 1916, the total for the first five months of 1921 compared favorably with that in any recent year except the war period, when washery coal was being shipped in large amounts.



Coal Age Index, 92, Week of June 21, 1921. This diagram shows weekly changes in the spot prices of bituminous coal in the United States as a whole. All prices are reduced to one figure and compared with the **average** government price of 1918, taken as 100. Actual spot prices for each coal are given in the table below.

Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY

(NET TONS)

BITUMINOUS COAL

Total Bituminous, Including Coal Coked

	1921 Week	1921 Calendar Year to Date	1920 Week	1920 Calendar Year to Date *a*
May 28*b*	8,166,000	160,625,000	9,568,000	207,749,000
Daily average	1,361,000	1,277,000	1,595,000	1,645,000
June 4*b*	6,821,000	167,445,000	9,141,000	216,890,000
Daily average	1,330,000	1,277,000	1,662,000	1,648,000
June 11*c*	7,945,000	175,290,000	10,355,000	227,245,000
Daily average	1,324,000	1,279,000	1,726,000	1,651,000

(*a*) Less 2 days' production during the first week in January to equalize number of days covered for the last two years. (*b*) Revised from last report. (*c*) Subject to revision.

ANTHRACITE

	1921 Week	1921 Calendar Year to Date	1920 Week	1920 Calendar Year to Date *a*
May 28	1,988,000	37,573,000	1,885,000	35,611,000
June 4 (*b*)	1,573,000	39,146,000	1,536,000	37,147,000
June 11 (*c*)	1,963,000	41,109,000	1,960,000	39,107,000

(*a*) Less 2 days' production during the first week in January to equalize number of days covered for the last two years. (*b*) Revised from last report. (*c*) Subject to revision.

BEEHIVE COKE

Week Ended June 11 1921 *a*	Week Ended June 4 1921 *b*	Week Ended June 12 1920	1921 to Date	1920 *c* to Date
60,000	61,000	400,000	3,251,000	9,755,000

(*a*) Subject to revision. (*b*) Revised from last report. (*c*) Less 2 days' production during New Year's week to equalize number of days covered for the last two years.

PRODUCTION OF ANTHRACITE

(In Net Tons)

Year	May	Calendar Year to May 31
1913	7,945,000	38,300,000
1914	8,348,000	35,600,000
1915	7,807,000	35,200,000
1916	7,212,000	36,100,000
1917*	8,933,000	39,500,000
1918*	8,880,000	41,200,000
1919	7,525,000	32,500,000
1920	7,946,000	36,100,000
1921	9,497,000	37,700,000

* Years of very large washery production.

Although the retail trade feels the slowing down that has been in evidence for two weeks, operators so far have been able to go along without much trouble. However, unless householders take up the "buy-early" idea at an early date a slump in production is inevitable. Independent producers, by sacrificing steam sizes, are able to maintain a good rate of production, although their premiums are more difficult to obtain than a short time ago.

On June 20, 10,000 miners employed in the Pittston district of the Pennsylvania Coal Co. went on strike, which was called in an effort to force a transfer of all colliery superintendents to new positions and to establish uniform wages at all collieries, in addition to several minor complaints.

COKE

Beehive coke production was practically unchanged during the week ended June 11. The industry remained in a state of complete depression, the total output being placed at 60,000 net tons, a decline of 1,000 tons from the preceding week and but 15 per cent of production in the corresponding week of 1920.

Some independents are making further wage reductions, but as the demand does not exist, lower Connellsville quotations fail to attract the interest of buyers. Quotations now stand at $4.50@$5 for foundry, and for furnace at $3.10 @$3.25.

Foreign Market And Export News

Hampton Roads Market

The coal business at the local piers during the past week took a decided reverse, and prices dropped to the lowest level of the year. Pools 1 and 2 are now offered for $6, while Pools 5, 6 and 7 are quoted $5.15@$5.25.

C.i.f. prices reported were as follows: United Kingdom, $12.15; French Atlantic ports, $11.90; Rotterdam, $11.20; West Italy, $11.70; Rio Grande de Sul, $10.65; Scandinavian ports, $13.15.

C.i.f. prices quoted do not always represent the full price charged the consumer in the United Kingdom, for, in some instances, the orders are received in this country through factors in England who add several shillings as their commission. The above quotations do not represent the top of the market, for the range on Pool 1 to West Italy has been as high as $12.50, and on gas coal to the U. K., from $12.50@$12.90.

Clearances of coal cargoes last week from Hampton Roads were as follows: (Ports given when of record.)

	Tons
For Italy	
Swed. SS. Skagern	7,542
Am. SS. Kentuckian	7,936
Am. SS. Waukau	7,224
For France	
Jap. SS. Yoye Maru, for Bordeaux	8,860
Fr. SS. Ontario, for Havre	2,178
Span. SS. Cabo Ortegal	2,488
Br. SS. Clan Macbeth, for Havre	6,046
Am. SS. Kameist, for Bordeaux	7,187
Br. SS. Monadnock, for St. Nazaire	3,903
For Cuba	
Am. SS. Cotopaxi, for Havana	3,580
Swed. SS. Holmia, for Havana	2,546
Nor. SS. Bratland	3,033
For Brazil	
Br. SS. Adrogowan, for Buenos Aires	4,408
Br. SS. Marshal Plumer, for Rio de Janeiro	4,053
Br. SS. Kurdistan, for Rio de Janeiro	6,039
Br. SS. Framington Court, for Rio de Janeiro	....
For United Kingdom	
Grk. SS. Rokos Vergottis	7,890
Am. SS. Celeron, for Dublin	2,982
Br. SS. Roseden	6,662
Am. SS. Tollard, for Queenstown	7,402
Br. SS. Glenclevon, for Falmouth	5,712
Du. SS. Winterswijk, for Falmouth	4,754
Br. SS. Cornish City, for Falmouth	7,189
Am. SS. Yesoking, for Falmouth	7,017
Br. SS. Fullerton, for Falmouth	4,434
Am. SS. Ozette, for Portland	7,800
Br. SS. Knebworth	3,649
For Portugal	
Br. SS. Admiral Hastings, for Lisbon	4,292
Grk. SS. Meandres, for Azores	3,923
For Spain	
Am. Schr. Anandale, for Teneriffe	2,453
Br. SS. Leeds City, for Malta	3,136
Nor. SS. Truth, for Rosario	4,640
Br. SS. Bideford, for Rosario	4,960
Am. SS. Corozal, for San Juan	4,023
Br. SS. Bereby, for Las Palmas	2,308
Ital. SS. Nonentum, for Gibraltar	5,653
Nor. SS. Mount Vernon, for Kingston	843

Belgian Production for April

Belgian production of coal in April, 1921, amounted to 1,712,490 tons, as compared with 1,800,040 in March, and a monthly average of 1,867,845 tons in 1920. Stocks at the end of April were 1,159,120 tons. Coke production amounted to 132,720 tons as against 160,130 tons in March. Total briquet production was 203,730 tons in April and 204,590 tons in March.

Arrivals at French Ports

During the two weeks ended May 21 the following coal cargoes were received at French ports:

	Tons
ROUEN	
S. S. Utaritz, for Quitard, from Antwerp	1,600
S. S. Niobé for Un Gaziere, from Rotterdam	2,300
S. S. Johim Shaw, for P.— L.— M., Rotterdam	2,100
S. S. Mortagne, for Ch. Fer Etat, from Rotterdam	1,865
CHERBOURG	
S. S. Aulne, for Sté Union Commerciale	1,469
SAINT NAZAIRE	
S. S. Woerths, for Transports Maritimes, from Dunkirk	306
S. S. Nouvelle-Ecosse, for Energie Electric, from Antwerp	1,000
S. S. Montjoie, for Irugnac, from Ghent	1,300
LA ROCHELLE	
S. S. Argonne, for Delmas, from Rotterdam	3,005
S. S. Soutier, for Usine à Gas, from Antwerp	1,095
PAUILLAC	
S. S. Nantes, for Ch. Fer Midi, from Ghent	3,983
MARSEILLE	
S. S. Serbistan, for Cie P.— L.— M., from Rotterdam	4,922
S. S. Canada, for Cie Fabre, from New York	1,000
S. S. Burnhope, for P.— L.— M., from Rotterdam	3,700
S. S. Ustaritz, for Quitard, from Antwerp	1,600
S. S. Fondeur, for Office Charbons, from Antwerp	1,200
HONFLEUR	
S. S. Cholet, for Ch. Fer Etat, from Rotterdam	1,073
BAYONNE	
S. S. Luga, for Forges Adour, from Rotterdam	3,277
S. S. Industria, for Worms, from Antwerp	200

Coal and Coke Exports from the United States During May

Exports of coal and coke, as reported by the Department of Commerce, for May, 1921, and the figures for May, 1920, as finally revised, are as follows, in gross tons:

	May, 1920.	May, 1921
Anthracite	277,197	434,308
Bituminous, total	2,400,821	2,500,374
Exported to:		
France	245,915	50,136
England	7,751	173,175
Ireland	.....	51,717
Scotland	.....	81,865
Italy	380,015	332,851
Netherlands	215,823	22,864
Sweden	84,532	10,220
Switzerland	84,272	.....
Canada	716,453	1,124,246
Panama	.....	.....
Mexico	7,121	7,915
British West Indies	6,232	8,888
Cuba	113,861	14,345
Other West Indies	11,438	2,986
Argentina	101,144	113,733
Brazil	73,190	103,474
Chile	40,488	4,685
Uruguay	31,128	30,455
Other countries	281,458	366,819
Coke	42,077	15,641

Shanghai Market Report

Deliveries of Japanese coal are moving very slowly, according to Wheelock and Co.'s market letter, issued at Shanghai, May 19, 1921. Stocks are ample and a quantity of inferior coals awaiting disposal has weakened the market. The recent decision of the Japanese Mine Owners' Association to reduce production by about 20 per cent should soon have a steadying effect.

Fushun and Fuchung anthracite coals are quiet. Supplies of Kaiping coal have been more regular and there is a good call for the better grades.

Prices quoted are as follows:

	Taels per ton ex wharf
Japan Coal	
Kishima lump	14.00
Shakano lump	13.50
Arate lump	13.00
Shimoyamada Kirigomi	12.00
Shin Shakano Kirigomi	12.00
Yoshinotani No. 1 lump	13.00
Yoshinotani No. 2 lump	11.00
Ochi lump	13.50
Kaiping Coal	
No. 2 lump	11.50
Washed nuts	13.50
Washed slack	10.50
No. 1 slack	8.50
No. 2 slack	8.00
Fushun Coal	
Dust	10.00
Kirigomi	11.00
Fuchung (anthracite) Coal	
Nos. 1, 2 and 3 cobbles	14.00
Boiler coal	13.50
Dust coal	9.50

Coal Unloaded at French Ports

	Week Ended May 12	Week Ended May 19
CHANNEL PORTS		
Dunkirk	34,602	.....
Boulogne	1,500	3,475
Dieppe	2,642	1,096
Le Havre	6,500	5,600
Rouen	10,100	6,300
Caen	4,982	5,350
Cherbourg	250	1,219
Fecamp	138	.....
Legue-St-Brieuc	360	.....
Le Treport	383	.....
ATLANTIC PORTS		
Brest	3,000	1,128
Saint-Nazaire	3,408	5,478
Nantes	3,420	677
Bordeaux	18,973	11,180
Bayonne	1,171	1,175
Lorient	2,748	1,765
Les Sables-d'Olonne	450	.....
Tonnay-Charente	.....	209
Marseilles*	4,998	4,148
La Rochelle-Ville	.....	1,095
Total	99,625	49,895

* Mediterranean port.

BRITISH BUNKER SHIPMENTS during April were 661,800 tons, as compared with 1,175,564 tons in April, 1920, and 1,796,619 tons in April, 1913. During the first four months of the present year, 3,798,145 tons were so shipped, as compared with 4,520,957 tons and 6,744,106 tons in the corresponding periods of 1920 and 1913.

BITUMINOUS COAL DEPOSITS in the neighborhood of Halle on the Saale in Germany, which have not been worked for about a hundred years, are about to be exploited again. Careful examinations have been made during the last few months and according to the report of the experts the veins are well worth being developed again.

THE CAPITAL OF ICELAND is reported to be suffering from lack of coal, on account of the British strike, and has been forced to buy from Belgium.

Reports From the Market Centers

New England

BOSTON

Dullness Is Unrelieved — Operators Struggle to Get Orders — Industries Await Developments — Anthracite Demand Continues to Slacken.

Bituminous—The past week disclosed no change in the general situation. Two months ago the trade was talking hopefully of a possible revival in July, but today has about abandoned hope of improvement until well after the vacation period. Only by most careful combing of territory are any orders found, and then only for small tonnages that in the aggregate amount to only a few thousand tons a week. The largest buyers are consistently staying out of the market, content to wait until present reserves show signs of depletion. To talk with certain of these consumers one might suppose the present price level would last through next winter, so little faith is there in higher figures.

At Hampton Roads the market coastwise is extremely quiet, the monotony being relieved only by intermittent inquiry off-shore. Contract quotas are being shipped to New England, but the volume is less than in other years. Fewer plants are dependent upon smokeless and the larger part of current movement here is to factors who strive to place the coal inland as it reaches the rehandling port. On these coals there is practically no spot sale in this market.

Operators are not relaxing in their strenuous efforts to get orders. In the Somerset district, in particular, special inducements have been made to move current output, such efforts being all the more necessary because of the existing differentials against B. & O. coal in large areas of New England. Cuts of 50c. have been quite frequent, but there is no sign that these have resulted in much tonnage. In Cambria and Clearfield counties prices have not receded to the same degree, but even there it has not been unusual for a shipper to quote 25@40c. less than the week previous. There are frequent instances, too, where coal has been sent to Tidewater in the vain hope an order would turn up at a price that would not be ruinous.

Industrial conditions show the same slackness that has been characteristic for months. Aside from a few special lines, there is nothing like the recovery that was predicted for the summer months. Sales continue on an extremely light basis and the retail buyers' strike continues in full force. Until production is on a higher level there will be no hope for the depleted stocks of coal toward which the trade has been looking wistfully for many months.

Railroads here are accepting coal only sparingly on contracts. Many shippers are shut off for weeks at a time and it is only by constant effort on their part that contractors are permitted to make deliveries in the proportion ordered. The financial situation has an acute bearing on this, because of the great difficulty experienced by the roads in securing money to operate on any satisfactory basis.

Anthracite—It becomes increasingly evident that the market for domestic sizes is by no means in the hands of producers. Where a month ago the dealer was willing to take a fair proportion of chestnut to secure egg and stove, he is now insisting upon the two larger sizes. Of course this is forced upon the retail distributor by the attitude of the average consumer. The latter, when he buys at all, is most independent and insistent upon the sizes in shortest supply.

Tidewater—East

PHILADELPHIA

Retail Anthracite Continues to Ease—Stove Only in Demand — Consumers Seek Credit—Bituminous Trifle Weaker —Prices Shade Off — Railroads Take Cheap Fuel.

Anthracite — Although the retail trade feels the slowing down that has been in evidence strongly for two weeks, the operators so far seem to have been able to go along without much trouble. They realize that they are going to have difficulty to work to capacity this summer. Thus far the strongest demand comes from the West and the fact that the big shippers are filling up their Lake docks no doubt accounts for the comparatively heavier shipments in that direction.

There is a general feeling among retailers that their margin of gross profit has shrunk so much as to be out of line with good business practice. However, the public is so much agitated over price that there is a general hesitation to add to the figures established in May. If the operators decide to increase mine prices on July 1 to cover the recent tax assessments made against them, the retailers must increase their delivered prices in accordance.

It is quite a common practice lately for the retailers to hold all their orders except stove. In spite of the slackening in demand the independents have thus far firmly held to their prices, with the possible exception of pea. It will be extremely interesting to watch developments in this direction during the summer, as retailers are somewhat anxious to take advantage of cut price coal, should the opportunity offer.

Steam sizes are unimproved and in some respects buckwheat has even lost ground. Usually heavy stockers of this size are somewhat inclined to cut down their storage. Rice and barley continue in extremely light demand.

Bituminous—The trade has grown even less favorable, and it would seem that the call from the consumer is about at the lowest ebb of the season. Most manufacturing plants continue to take their barest necessities, and were it not for the utilities the business would be close to a standstill.

There has also been some easing off in prices recently, as some fairly important shippers seem determined to get a market. It is also likely that some shippers have been able to lower the wage scale at open-shop mines and this is shown in lower figures for spot coals.

There has been somewhat of an increase in tonnage taken by the railroads. The roads are occasionally taking advantage of particularly low prices, as some shippers are accepting this business at an almost cost basis. Inasmuch as there is likely to be an extended wait for payment this all tends to show how anxious the producers are to do business.

NEW YORK

Anthracite Demand Easier — Independent Prices Hold — Steam Coals Accumulating—Bituminous Market Quiet—Movement Slow but Prices Are Maintained.

Anthracite—Falling off in demand by consumers is not being felt by dealers and shippers. The former have plenty of orders on their books to take all the domestic sizes sent for several weeks to come. Local houses report a good demand from Western points fed through the Lake and a steady but not urgent demand from the New England States.

Most local yards are well stocked and deliveries are made rapidly. Some of the smaller yards have been closed up because of the dull business. Retailers are well caught up with their summer orders.

With but a couple of weeks before the Pennsylvania State Tax on anthracite becomes effective the trade is anxiously awaiting some announcement of the policy to be followed by the operators. It is the belief however, that the tax will be added to the price of the coal at the mine, eventually to be paid by the consumer.

At this time the domestic coals are being quickly absorbed but it is apparent to many that there will be a much easier situation next month, with a possible surplus of certain sizes.

Pea is hard to move and is accumulating. The smaller coals are burdensome. Stocks are accumulating and are being stored by both companies and independents. There are many loaded boats in this harbor, some of which contain

barley that has been offered at prices slightly above the freight charges.

Bituminous—Nothing that looks like a revival of buying can be seen in the situation. Conditions could hardly be worse. There are some who fail to see any sunlight until the late fall or early winter, but they admit that much will depend upon general business conditions.

Coal, unless on consignment, is not being sent to Tidewater in large quantities. Receipts here are below normal, reports of June 17 showing 2,268 cars in and out of the pools at the various local piers as compared with 3,055 cars on May 17.

The refusal of the British miners to return to work will, it is thought, stimulate the demand for coal for export. Inquiries have been coming in slowly. Bunkering demand is quiet.

Quotations fluctuated considerably during the week. Slack was quoted $1.50@$1.75; Ligonier $2.15@$2.30; Shawmut $2.35@$2.55 and Punxsutawnew $2.40@$2.55. Quotations for Pool 9, f.o.b. local piers ranged $5.90@$6; pool 10, $5.60@$5.75; Pool 11, $5@$5.25, and Pool 18 $4@$4.50. There was very little Pool 11 or 18 available here.

BUFFALO

Market Inactivity Continues — Lake Movements Still Heavy — Anthracite Moving as Usual — Market Dull.

Bituminous—Shippers are of the opinion that there is too much coal on the market and are prepared to see more mines shut down before there is any improvement. The Lake movement is also too heavy, for the coal does not sell as fast as it arrives at the upper docks and congestion is in sight. All consumers believe that prices are to go lower before the general state of business improves, so they buy mostly when a cut in price is offered.

The shippers do not see any immediate decline promising and believe that so far as that part of the business is concerned we are likely to go into cold weather with conditions much as they are now, unless cost adjustments can be hastened more than is in sight now. The consuming public is prepared to go on without much variation at least a while yet.

Bituminous prices continue weak on the basis of $3.50 for Youghiogheny gas lump, $2.75@$3 for Pittsburgh or No. 8 steam lump, $2.40 for Allegheny Valley mine run and $1.75@$2 for slack, with a little Pennsylvania smokeless at $2.50 and smithing at $3.

Anthracite—Demand continues light. Consumers are so afraid that they will miss a small decline in the price that they hold off and take their chances of going into winter without any coal. Meanwhile the mines have to run at a low rate and may be unable to meet the needs of the trade when they are most urgent. Canadian retailers have full bins and no trade.

Lake shipments are still good, the loadings for the week ended June 11 being 111,400 tons, of which 38,800 cleared for Duluth and Superior, 23,000 for Chicago, 18,000 for Milwaukee, 9,000 for Houghton, 7,800 for Fort William, 7,500 for Sheboygan and 7,300 tons for Manitowoc. Freight rates remain 65@70c. to Chicago, 65c. to Houghton, 60c. to Milwaukee, 55c. to Sheboygan and Manitowoc, and 50c. to Duluth, Fort William.

Coke—The trade is as quiet as ever, with no stir in immediate prospect. The movement of iron ore down the Lakes is very light and yet it is piling up much as it was in flush seasons when the amount coming in was up to the limit. One Pennsylvania shipper quotes 72-hour foundry coke at $4.75, and 48-hour furnace $3.50@$3.75.

HAMPTON ROADS

Accumulations Increase with Lighter Demand—Prices Weaken—May Dumpings Record for the Year.

Tonnage awaiting cargo at the three piers at the last of the week had been reduced to scarcely 25,000 tons in the aggregate, and accumulations at Tide were increasing. During the first part of the month the N. & W. piers were operating three shifts, and the outlook now is that the piers will return to two shifts.

Very little coal is now being shipped to Great Britain. Considerable tonnage is going to France and Italy, and much of it is being carried in American bottoms.

A comparison of the situation at the coal piers is as follows:

	Week ended June 9	Week ended June 16
Virginia Ry. piers, Sewalls Point—		
Cars on hand	1,561	1,752
Tons on hand	72,800	76,600
Tonnage waiting	6,350	26,150
C. & O. piers, Newport News—		
Cars on hand	1,908	2,095
Tons on hand	95,060	104,410
Tonnage waiting	69,850	1,575
N. & W. piers, Lamberts Point—		
Cars on hand	2,242	1,953
Tons on hand	103,947	91,988
Tonage waiting	52,795	3,860

BALTIMORE

Home Market Still Softer — Export Trading Continues to Increase — Hard Coal Merely Marking Time Until July 1.

Bituminous—There is not a doubt but that the soft coal business of Baltimore is dragging even more heavily than it was two weeks ago. This is in sharp contrast with the export trading, which has continued to increase steadily during the past two weeks as far as this port is concerned.

Except for a very few exclusively held fuels, the best steam coals are now to be had in the spot market around $2.75. Coals of high grade are frequently offered as low as $2.40 while the poorer grades are running $1.75@$2. Quotations on best gas lump are frequent at $2.75 while best run of mines is on the market at $2.40 or less. There is no demand even at these prices either in the spot market or on export. As stated however, the export movement is extremely healthy and the total loading for the first half of June, on 26 ships, ran to 147,219 tons. Eighteen of these ships took 19,962 tons additional in bunkers.

Anthracite—The hard coal trade is merely marking time. There is no demand to any extent for any class or size. The dealers have given up the attempt to convince the public that it should buy early because there is likely to be a sharp advance in retail prices due to wholesale increases after July 1. Dealers report that the small amount of coal now coming in is better prepared than was the case some weeks ago, when a formal joint complaint was made to the mines.

Canada

TORONTO

Trade Continues Quiet—Orders Coming in Slowly—Yards Well Stocked—Bituminous Easier.

Trade continues quiet as orders from domestic consumers are coming in slowly and are mostly confined to present requirements. Many buyers are holding back in the hope of reduced freight rates, which if granted may be more than offset by the increased price of coal later in the season. The yards have ample supplies on hand of all grades. Bituminous is easier owing to the limited call for industrial purposes and there is no appreciable indications of a more active market in the near future.

Quotations are as follows:

Retail	
Anthracite egg, stove, nut and grate	$15.50
Pea	14.00
Bituminous steam	$11.00@$11.50
Domestic lump	12.25
Cannel	16.00
Wholesale f.o.b. cars at destination	
¾-in. lump	$8.00@$8.50
Slack	6.00@ 6.75

Northwest

DULUTH

Increasing Dock Stocks Menacing — Trading Dull Despite Falling Prices — Lay-Up of Boats in Harbor.

The first indication of any return to life in the coal industry here came last week with the announcement that a railroad coal contract had been let for 300,000 tons. Names of those interested were not made public. The price is understood to be much lower than standard.

Constantly increasing stocks on docks are proving a menace. This has not as yet reached a crisis, but there is no hope that coal will move out speedily in the future. Two large concerns on the iron range, the Winston-Dear Co. and the Butler Bros. have stopped stripping, which is unprecedented at this time of the year.

Although no formal reductions in bituminous prices have been listed, lots were quoted at 50c. below last week. Youghiogheny and Hocking are being offered at $6.50 with run of pile at $6 and screenings at $4.25. There has been no response from dealers who continue their non-buying policy in the hope of still lower levels.

In all fifty-six boats arrived with coal during the week ended June 11, of which six were anthracite. Nineteen cargoes are reported on the way, but none of these are hard coal. A possible shortage in hard coal looms as the shipments decrease, and prices are holding firm.

Several boats have been laid up in the harbor because of inability of getting down cargoes. Two or three of the lines which have laid up their boats have announced that it is for the balance of the season, while other ship owners say that the time of the lay-up will depend upon iron ore activities.

MINNEAPOLIS

Buying Delayed in Anticipation of Lower Freights—Dock Supplies Heavy —All-Rail Situation Slow.

Waiting for the coal trade to develop is a good deal like waiting for the circus parade of boyhood days. It will be a tribute to the ability of the men in the business to control their emotions if there is not an epidemic of nervous prostration as a result of the present season's interminable delays. People are simply convinced that all commodities must come down in price, and they are not convinced that the coal trade has done its share.

It is easy enough to account for the present situation to those familiar with general conditions. But the bulk of coal buyers—at least retail buyers—are not familiar with these conditions. They see in coal only a moderate concession which they declare is nowhere near enough of a decline, and they propose to do all possible to get the rest of the concession. The several possible freight reductions have naturally created hope for some relief in that direction, in fact caused expectations which are likely to be disappointed for many localities. The changes on the mileage basis of certain interstate shipping points will give a number of increases as well as many decreases.

Those who are waiting for the changed rates will have a chance to ship under them. Buying usually picks up shortly after July 1, and with the delays which have occurred in buying so far, it ought to get under way actively, to make up for lost time. It would be a bold prophet who would say that it will, however.

There has been a good tonnage sent forward to the docks, sufficient to give a good start on the fall needs. But the situation is threatening, if there is not some relief in the way of coal going to the interior. The docks cannot handle an indefinite tonnage, except by some of it going out. So far the outgoing traffic has been materially under a year ago and less than usual. Now the upbound traffic is likely to be handicapped by the lack of return cargo.

The all-rail situation is as slow as ever. There is but little tonnage being placed in this territory. Indiana coal of a superior quality has been offered in this market at $2.60 at the mine, which with the freight, makes the cost on track Twin Cities a little over $6. This seems to be as low as could be expected under present freight and mine labor costs, but it has not been regarded as especially alluring.

MILWAUKEE

Market Very Dull — Little Buying Being Done—Coal Piling Up in Yards—Arrivals by Lake Continue Heavy.

Naturally this is the quiet season in the fuel trade, but in the past and up to the time the coal supply became erratic, there has invariably been a reasonable movement during the summer months, and before the winter began a large percentage of consumers always had their supplies in their bins. Unless consumers can be aroused from their indifference there is bound to be an overwhelming rush of orders next fall. The general public regards coal prices as being too high, and is looking for a possible decline. Perhaps when anthracite is put up another 10c. on July 1, consumers will begin to realize that coal prices are here to stay.

Thus far 1,152,905 tons of coal have reached this port, of which 335,212 were anthracite and 817,693 soft coal, which is more than double the amount received up to this time last year.

Inland West

DETROIT

Little Demand Is Developing—Receipts Continue Small and Free Coal Is Scarce.

Bituminous — Consumers are still holding back and there is seemingly little interest among buyers of either steam or domestic. With industrial and manufacturing activities showing so greatly decreased volume, the consumption of steam coal is largely diminished.

Jobbers say, however, that some of the curtailment in volume of their business is attributable to a theory among some buyers that a reduction of railroad freight rates may be expected in the near future and that coal will then be delivered at a slight reduction from present costs. Jobbers maintain that even conceding that lower freight charges are made effective, buyers will find themselves bidding against each other and that in the rush to get coal in a limited period, selling prices will be worked upward to a point which will more than counterbalance the amount saved on transportation charges.

In the attitude of delay, jobbers see also a serious menace to adequate coal supply. They believe that the requirements of other shippers and the pressure of crop movement, owing to an unusually large number of defective railroad cars, will tend to create a shortage in transportation facilities that may seriously interfere with movement of coal.

Buyers of domestic coal are now giving attention to other matters than providing for winter fuel requirements, with the result that little business is going to retailers.

West Virginia lump is quoted $3.25@$3.50, mine run $2.40@$2.50 and slack around $2. Ohio lump is $3@$3.25, mine run $2.15@$2.25 and slack $1.15@$1.90. Smokeless lump and egg are $5.50, mine run about $3.50 and slack $2@$2.25.

Anthracite—While some anthracite is arriving, the supply is not large. Retail dealers, generally, have a fair supply, but find their customers are manifesting no interest in stocking up. The indifference of buyers is attributable in part at least to unwillingness to pay $14.25@$14.75 a ton for domestic sizes.

MID WEST REVIEW

Retail Stocks Not Moving — Buying Slumps—Eastern Coals at Bargains—Mushroom Operators Dropping Out.

In ordinary years at about this time the demand for domestic falls off very sharply, but, on the other hand, the call for steam is strong and these coals ordinarily sell at a premium during June and July. This annual depression has been very strongly pronounced this year, probably on account of the unfortunate industrial condition in the Middle West.

Retail dealers are very worried. They report that the people are refusing to buy as they claim both freight rates and prices will be reduced shortly. Any one closely in touch with railroad affairs knows that it will be a matter of months before rates are reduced if at all. Should the operators be called upon to make further reductions without reducing labor, it will mean that the mines will have to close down or go bankrupt. If conditions get much worse, it is expected that the banks will step in, forcing some of the operators to discontinue running their mines.

The average retail yard is filled to overflowing, and has been since early in the spring. A great many cars which have been shipped are reported in bad order somewhere between the point of origin and destination. The percentage of bad-order cars has shown a marked increase, and will continue until various coal carriers find themselves in a position to make some expenditures on their old equipment. Motive power is in almost as bad shape as rolling stock.

A year back, old established companies saw a great influx of new blood. All over the Middle West there sprang up mushroom companies which were out to make as much money in a short time as possible. These operators usually took over some abandoned mine which had been forced to close down on account of the poor quality coal it produced. Now that the situation is subnormal rather than normal, these mushroom companies are finding themselves faced with many difficulties. A number have already failed, but a greater number are still hanging on, living, no doubt, off the substantial surplus they were able to accumulate last season. The fact that these speculators are being shaken out of the market is about the only benefit the legitimate trade is

able to derive from the present unsatisfactory industrial slump.

During the past week eastern coals such as splint and smokeless from West Virginia, block from Kentucky, etc., have been offered at reduced prices. Operators with mines in the East took on early in the spring substantial orders for Lake shipments to the Northwest. The operators who obtained these orders started right in running their mines full time, trusting to fill the orders along the latter part of August. Unfortunately, the normal demand for prepared coal did not eventualize, consequently, instead of shipping out a considerable tonnage to the domestic trade, the operators have been forced to concentrate on their Lake orders, a number of which have been nearly completed. Operators are now casting about for additional business in order to insure running time until the movement of domestic coal will have to take place.

It is surprising to note that one of the largest engineering concerns, so far as the development of coal mines is concerned, is doing more business than it has done in years. In fact, this group of men have reached the point where it is almost impossible for them to assume any new contracts. Many mines, which have been closed down, were worked pretty hard ever since the war period and are in poor shape. Operators are seizing upon the present situation to have them thoroughly rehabilitated inside and out so as to be ready for the winter rush which must come inevitably.

COLUMBUS

Lake Tonnage the Only Feature — No Industrial Improvement—Domestic and Steam Business Is Dead.

Buying for domestic and steam is restricted to actual immediate needs and as a result little tonnage is moving. Everyone appears to be playing a waiting game, in the hope that freight rates will be reduced and also because of unsettled industrial conditions.

Lake trade is still the big feature of the business. Shippers who have contracts are straining every point to get a large tonnage to the lower ports. Most of the trade is being carried on by operators who have their own dock connections. Little contracting has been done outside of these concerns. Vessels are still scarce and there is some congestion at the lower ports.

Dealers are not moving much tonnage. Some of the better grades such as Pocahontas and New River are moving but Ohio-mined coals are dull. Rural sections are not absorbing much, although some dealers are buying coal for threshing purposes.

Manufacturing is not being resumed to any extent, especially in northern Ohio industrial centers. Some lines show an increase while others show a falling off in operations. The policy of these concerns is to pick up bargains when they desire fuel.

Production is rather quiet. During the week ended June 4, the Southern Ohio Coal Exchange reports a production of 131,258 tons from the 396 mines reporting. The holiday at the first of the week interfered with production.

CHICAGO

All Demands Reach New Low Level—Unemployment Curtails Domestic Buying—Anthracite Bargains Appear.

Without doubt, it is very safe to say that the coal market has, during the past week, been more stagnant than at any time during the last six months. The demand for coal has steadily decreased since last December, and we believe we have now reached the point where the market is just as stagnant as it can be. The low level has been reached, and, from now on, it is the opinion of those closely in touch with the situation, there will be some small improvement.

Chicago retailers report that the public is refusing to buy coal. Those who have money to spend are refusing to buy on the ground that prices will be reduced during the course of the next six weeks. In addition to this, a great many men who usually buy their household coal early find themselves out of work, and, consequently, have no money whatsoever to spend on coal. The percentage of those out of employment in and around Chicago is growing steadily, and supplying these people with coal later on is going to be a problem.

A great many bargains have been offered, both in steam and domestic coals, during the past few weeks. Some of the independent producers of anthracite have made special prices to wholesale agents in Chicago, quoting prices which are considerably below those quoted and held by the old line operators.

CINCINNATI

Distress Coals Drive Down Prices—Slack Goes Begging — Retail Figures Fairly Steady.

Full pressure of a non-absorbing market was applied this week to drive prices on slack lower. Southeastern Kentucky bituminous made the new distress level for 80c. On the other hand, certain of the mines were actually quoting as low as 90c. and their price to wholesalers must have been under this figure, for they too were making the same price. West Virginia slack was $1, even for tonnage that was on demurrage or nearing it in the yards. Mine prices were a bit stiffer than in Kentucky and good coal commanded as high as $1.50 for better grades of gas. Smokeless also sagged. Dry Fork in the Pocahontas field has been the low spot with $2@$2.10 sales recorded, but No. 3 vein was to be had cheaper than for some time, around $2.50.

Block was offered to bear the burden of the slump in screenings. Wholesalers asked as high as $4 for it, where $3.50 was the outside price. Those who do business in the Carolinas and north Georgia say that the price has gone even higher.

Smokeless lump has evinced a little tendency toward softness. Another drop of 25c. has been shown while nut and egg are quoted from $5@$5.25. Mine run is unsteady and can be had at $3@$3.25.

There have been scant changes in the retail market other than a 25c. advance on the top grades of smokeless, making this $10.25 for city and 25c. extra for hill-top deliveries. Slack has dropped to $5.75@$6.

ST. LOUIS

Market Is Quiet—Steam and Domestic at Standstill — Prices Have Gone to Pieces.

A continued lag in ordering prevails. There is no storage coal being put in, excepting a little anthracite on orders taken several weeks ago. Dealers' yards are full and the only soft coal moving is that for public schools and apartment houses.

The dealer trade is not doing anything. One branch office of a large company which sells 50 or 100 tons daily, occasionally has days when not more than five tons are sold. There is a feeling prevailing among the public that coal must come down.

Steam is almost at a standstill. The buyer can name his own price and he is not buying any more than he has to. In the country a little threshing coal has moved out, but it does not begin to compare with the tonnage of past years.

The St. Louis Coke and Chemical Co., of Granite City, have begun advertising their byproduct coke made from Illinois coal at $8.50 delivered to the trade, which is $2 under the local byproduct coke price. However, there have been no orders taken to any marked extent and it is likely none will be taken, because the public feels that there is going to be a fight for the coke business.

CLEVELAND

Lakes Chief Outlet for Coal — Industrial Demand Lighter — Slack Prices Weaken.

Bituminous—Further curtailment of industrial activities is reflected in the smaller demand for steam coal. Operators estimate that less Ohio coal is being produced and marketed than in May, a fact which coincides with the slowing down in automotives, rubber, iron and steel plants. The present outlook continues for a summer of unusual dullness. Many large coal users who follow the market carefully are inclined to agree with the opinion of George H. Cushing, managing director of the American Wholesale Association that "it is pure romance to predict now any such shortage of coal as will advance prices sharply."

The lack of a fear of advancing prices is resulting in most companies drifting along in the matter of fuel. When stocks are exhausted, prompt orders are placed. On the other hand the announcement of Secretary Hoover of the failure of efforts to bring about freight rate adjustments on coal

through voluntary agreements between producers and railroad interests, has undermined the hope of lower coal prices through reduced freight rates for many months to come. This consideration is expected to have some slight stimulating effect upon the market.

An outstanding feature has been the collapse of the slack market. This is due to the abundance of slack, the result of production of prepared sizes for Lake trade. Other prices remain unchanged.

The export demand at Hampton Roads is stimulating the West Virginia coal market and retailers here do not look for any price reductions in Pocahontas. Demand continues extremely light. Dealers report they are doing about 50 per cent of the business done at this time last year and demand is confined to higher grades of bituminous and to anthracite. Receipts of bituminous coal for Cleveland consignees, in week ended June 11, amounted to 1,153 cars; divided, industrial 851 cars, retail 302 cars; as compared with a total of 965 cars the preceding week, or an increase of 302 cars.

Lake—Dumping at the lower docks is increasing and stocks are being reduced. Dumpings last week amounted to 1,033,684 tons, a big increase over the corresponding week in 1920, when the total was 430,640 tons. Shipments up to June 1 of 4,802,667 tons were the heaviest for the period since 1913. Last season to June 1 only 1,497,304 tons were moved.

Southwest

KANSAS CITY

Domestic Buying Is Active — Market Overloaded with Steam — Prices Are Unchanged.

Buying of domestic grades produced in Kansas is on with a rush. Some operators are behind two weeks in shipments and steam grades of all kinds are a drug on the market, due to the general stagnation of business, low price of oil, and dumping of coal from outside markets.

Kansas and Missouri wheat crops are being harvested and the yield is good. If the wheat moves promptly to market it will result in an increase in the demand for locomotive coal. Railroads generally have been using only about one-third the coal ordinarily consumed. No change in prices from last week.

South

LOUISVILLE

Local Domestic Demand Fair, but General Markets Are Slow — Demand Weaker as Lake Tonnage Dwindles.

Lack of Lake shipping facilities as a result of transportation companies refusing to haul coal with no ore or down bound freight, is resulting in congestion of coal at Lake ports, as movement has been heavy. It is claimed that some Lake buyers have had to stop the movement for the time being, and that there is some danger of railroads placing embargoes if coal doesn't get started from the lower ports.

This condition has hit the eastern Kentucky shippers to the Lake section, making for weaker prices on domestic sizes, this along with small ordering on the part of retailers, who after geting stocked have been unable to force consumers to stock. Slump in prepared size demand may work for a stronger steam market.

Steel mills, not having orders, are not taking much ore this season, and this can clearly be seen by the fact that they are not taking much coal. Demand for gas and byproduct is quiet, while industrial, public utility, railroad and general demand for steam is about the same as it has been.

Quotations are shown in the Weekly Review. West Virginia and Hazard prices are generally about a quarter lower than Harlan, while Straight Creek and Jellico, along with Hazard No. 4, are in line with Harlan, which is commanding a top price, due to its being high-grade gas or byproduct coal.

BIRMINGHAM

Almost Complete Stagnation Envelopes Trade — Spot Sales Light and Prices Shaded—Domestic Buying Is Reduced.

An optimist connected in any manner with the coal trade is almost as scarce as the proverbial "hen's teeth." The steam coal market has been in a bad way since the Christmas Holidays and the opinion is generally expressed that improvement will be very slow and that normal conditions will not be reached this year. Railroad contracts have about all been placed with the exception of the Western of Alabama, which line also operates the Atlanta & West Point and Georgia Railways. Bids on the fuel supply for these lines are now being considered.

No other interests are considering contracts and spot buying is at a low ebb. Such coal as is being sought can be bought at almost any price demanded by the purchaser. However, there is not enough of this business to use as a criterion for quotations, representative figures running about as follows: Carbon Hill $2.50@$2.75, Big Seam $2.25@$2.75, Corona $2.75@$3.25, Pratt and Nickle Plate $2.85@$3.25, Black Creek $3@$3.25, Cahaba $3@$3.25.

Domestic dealers are still taking coal fairly well though there is considerable complaint to the effect that consumers are not buying any considerable amount, which is tending to slow down deliveries from the mines to some extent. Quotations f.o.b. mines have not changed the past week.

West

DENVER

Revival Seen — Storage Price Fails to Produce Business—Trade Prepares for Busy Days.

Operators are looking forward to a revival, beginning with July, after a period of uncertainty that is without equal. The mine price will be back to $6 for lump, following a storage price that started in April with $5.65, and in some instances as low as $5.50.

For the first time in many months there is a scarcity of good mine labor, due to local conditions, many men making a practice to get into the best fields and through intensive work and long hours, average more pay than they could get in the mines.

With production at 250,000 tons a year ago, present activities are not sufficient to reach the sudden jump in output recorded a year ago, from 210,000 to 250,000 tons within two weeks.

The tendency during early summer to cut the price and keep below the graduated scale of the storage rates is no longer apparent, operators and dealers preparing for a rush of orders in another month or six weeks.

News From the Coal Fields

Northern Appalachian

ANTHRACITE

Production Well Maintained — Steam Coals Sluggish — More Labor Disputes.

Production increased during the week ended June 11. The total output was 1,963,000 net tons, compared with 1,573,000 for the week preceding, which was affected by the observance of Memorial Day. Demand for the domestic sizes continues good but steam coals are perhaps a trifle weaker. Many independents are now sacrificing the smaller coals in order to maintain their production of domestic.

A general strike is in progress in the Pittston district of the Pennsylvania Coal Co. where the General Grievance Committee charges that the company is not paying the wage scale and that there is no set scale for company men, the rate varying with the colliery.

PITTSBURGH

Production Declining — Decrease in Lake Shipments Expected — Market Easier.

Mine operations continue to slow down on account of the pressure exerted to reduce the accumulation of loaded cars at the Lake. Recently the Penn-

sylvania applied demurrage rules, but there are still probably 30,000 cars en route and at Lake front.

The U. S. Steel Corporation, which will have a moderate movement of ore, is taking coal on all its up-trips, when in previous years it has carried no coal, its boats going up in ballast. Expectations are that the bulk of the coal needed in the Northwest will be moved in the first half of the season. Then, if conditions as to demand have not improved, the miners will have reason to propose a lower wage scale in hope of stimulating demand.

Industrial requirements have grown even lighter. The steel industry has come to an almost complete stoppage, prospects being that by July 1 steel production in the country at large will be down to about 15 per cent of capacity. Demand for gas coal continues at a moderate rate.

Spot prices are a shade easier and for steam coal are well below what is claimed to be the production cost. Quotations are shown in the Weekly Review. There is no market on byproduct coal. Some Connellsville byproduct has been offered at about $1.75, but there is one case of a consumer continuing to take a high grade of Connellsville byproduct at $2.50.

CONNELLSVILLE

Some Small Business Closed — Prices Off — Some Plants Operate by Reason of Special Conditions.

Two contracts for furnace coke have been closed on the week. The Empire Steel & Iron Co. bought about 7,000 tons a month for third quarter at $3, and the Colonial Iron Co. about the same monthly tonnage for July to November, at $3.15. The latter company had trouble with its miners at its coke works adjacent to the furnace, and closed the department. The higher price in the contract running through October and November is in keeping with the usual trade appraisal that coke is worth more money during unfavorable weather. Prices done on the latest business are the lowest since the summer of 1916.

Spot coke has also declined. In the past few days one operator has been selling single carloads, through dealers, the price being $3, the consumer paying $3.10@$3.15. It is probable that consumers if buying in any tonnage could do $3. Spot foundry coke is off 25c.

The region is operating, as to coke, at about 10 per cent of capacity, but is shipping moderate quantities of coal. At the regular independent wage scale it is probably unprofitable to sell coke at less than $3.25@$3.50. Two or three plants are said to be threatened with squeezes, thus being forced to run, one is said to be reducing wages farther, and others are possibly getting a larger "hump" on the wagons than normal payment being by wagon count.

The *Courier* reports production in the week ended June 11 at 11,500 tons by the furnace ovens, and 21,490 tons by the merchant ovens, making a total of 32,990 tons, a decrease of 2,370 tons.

UNIONTOWN

Coke Prices Weaker — Coal Firm, but Trading Shows No Improvement.

Both coal and coke have scaled down to the point where it is most difficult to discern the existence of a market. For months past the volume of business done in selling offices has tapered off gradually until at the present time a substantial tonnage being sold becomes an event.

While there is little difference in the volume of business done in either fuel, the coke market is showing a softening tendency while coal prices remain firm at low levels. The declining coke market may be ascribed to the production of tonnage for which the operator had no destination in the expectation of finding a market. Unable to find a buyer the tonnage has stood on the side track while the market was canvassed and is now described as distress tonnage.

There being virtually no market at all and with a surplus of tonnage over the few inquiries made, the natural result has been to soften prices. Furnace coke has a range of $3@$3.25 but foundry coke continues stiff, ranging $4.50@$5. In the coal market, while business is limited, prices remain at the same level.

EASTERN OHIO

Lake Tonnage Dropping with Growing Accumulation at Ports—Industrial and Retail Demands Are Light—Production Recovers Slightly.

While there was a slight recovery in the output during the week ended June 11, it is quite evident that the maximum for the summer was reached and passed during recent weeks, unless there is an unexpected change in the various conditions affecting the markets served by this field.

Total tons mined amounted to 394,000 or about 63 per cent of rated capacity. Daily average was 65,667 tons as compared with 73,000 tons the second preceding week, which latter figure is the maximum established for the current year. Output for the year up to June 11 is conservatively estimated at 7,311,327 tons or 53 per cent of capacity. This aggregate tonnage is at least 1,000,000 tons ahead of the same period last year, when the car supply never exceeded 50 per cent in this field.

Figures given out by the operators indicate that association mines worked 50 per cent of possible worktime and produced approximately 61 per cent of rated capacity. Production for railroad account amounted to about 31 per cent of the total output.

The majority of consumers are buying in small quantities. If there is not some quickening very soon in the movement of coal from the Upper Lake docks, the shipment to Lake, which has been the great stimulant to production since May 1 will beign to show marked recession. Railroads have about 20,000 loads at the lower docks awaiting dumping, and 6,000 cars in transit. Lake shipments are now being curtailed because of prevailing conditions in that trade.

Both industrial and retail demand continues light, and with the steel plants running at less than 25 per cent capacity and retrenchment programs in effect at other manufacturing plants, coal shippers are not optimistic over the outlook for the immediate future.

CENTRAL PENNSYLVANIA

Production Rate Low — Present Scale Too High to Compete with Other Fields.

Production continues far below normal and reports thus far in June show no material change over May. There is much idleness among the miners of the district and operators contend that no relief is in sight as long as competitive fields are operating on a 1917 basis while this district must hold on to the war scale.

It was reported that the Vinton Colliery Co., operating at Vintondale, had made a big reduction in wages and that the men were satisfied to accept the reduction upon a promise that the mines would be operated continuously. All other mines in that vicinity are either closed or working part time.

UPPER POTOMAC

Even Less Demand — Production at Minimum — Prices Soft.

There was even less of a demand in the week ended June 11 and mine idleness was more pronounced. Even the larger companies were operating only slightly better than half-time. Only three or four companies in the neighborhood of Dodson and Potomac Manor had orders enough to justify running.

Pool 9 quotations were $2.75 and Pool 10 $2.50. No unclassified coal was being sold to amount to anything.

FAIRMONT AND PANHANDLE

Production Drops with Lighter Demand —Export Market Weakens—No Contracting.

Fairmont

Production conditions were not as satisfactory during the second week of June and mine idleness was more pronounced as a result. Out of 76 mines on the Charleston Division of the B. & O. only about six were in operation. A slump in Lake and Tidewater shipments was in evidence, the export demand having undergone a pronounced decrease. It was difficult to find a market for spot coal and prices as a result were soft.

Northern Panhandle

Only about 72,000 tons were produced during the week, the bulk of the output moving to Northern markets, Inland West points and the Lake. There was no activity in the spot market and practically no contracts were closed. Under the influence of poor demand even prepared sizes were not bringing more than $2.50@$2.90, with mine run ranging $2.25@$2.50 and slack about $1.50.

Middle Western

INDIANA

More Mines Closing—No Market for Coal — Serious Situation Threatens.

Mines continue to close down each day because of no market. Sidings are filled with loaded cars for there are no orders. Each day more mines drop from the list of those working and join those which have been idle for several months.

Miners seldom get more than three days work per week. Many of the men have not worked a day for over a month. Operators have given the men every opportunity possible for work, but they cannot operate when they cannot dispose of their coal.

It is probable that there will be an unusual fuel shortage during the winter months, as mines cannot supply enough coal for all domestic and industrial consumers unless they can produce the coal before the winter months. The Indiana situation threatens to become serious unless the public takes action immediately. Coal cannot possibly be cheaper next winter unless the mines are operating at this time.

WESTERN KENTUCKY

Demand a Little Quiet — Prices Well Maintained — Producers Operating About 40 Per Cent — No Efforts to Push Coal.

Western Kentucky mines are operating about 40 per cent and the operators are maintaining prices, and getting very fair figures as a whole, as they are no longer giving screenings or anything else away in an effort to keep running.

There is some little demand from the Chicago district, and from some Indiana points, with fair movement to Louisville, Nashville, Memphis and Evansville. The Southern movement is slow but fairly steady as a whole. There is some little river movement from western Kentucky to Mississippi River towns also, and some export business to Cuba, which while small, is being handled regularly. Prices are holding.

SOUTHERN ILLINOIS

Steam Coal Clogs the Market — Spot Sales Impossible — Prices Break Further—R.R. Tonnage Is Light.

The situation in the Carterville field shows no improvement over the past week. Only meager shipments are moving, going principally North and Northwest. Shipments for the South in St. Louis territory have dropped off.

The steam situation is a serious problem and it is a question how much longer mines will be able to take care of domestic orders unless steam business gets better on the smaller sizes. It is estimated that there are over 400,000 tons of steam coal on the ground in Williamson and Franklin counties. Many of these piles are burning, causing a lot of trouble. Several mines are still idle. Railroad tonnage continues light.

For the first time there has been a serious break in the association operators' prices. Independents, however, are as low as $3.25 on lump and egg, $2.75@$3 on nut, $2.75 on mine run and $1.50 on screenings, with very little of it moving.

The Duquoin field is in somewhat similar condition. Steam coal here is hard to move, but not much harder than domestic. In the Mt. Olive district one and two days a week is the working rule with most of the coal, both steam and domestic, moving North. St. Louis prices on domestic sizes are $3 and $3.25 on country shipments.

The Standard district is worse, if anything. Screenings are down as low as 75c., and there are no takers for anything. Screenings are, however, hardest to move and it is a question how much longer some operators can hold out, producing coal that is netting them about $1.40 when the actual cost ranges $1.75@$2. Railroad tonnage is light in this field.

Middle Appalachian

HIGH VOLATILE FIELDS

Lake Shipments Slowing Down — Market Is Weaker — More Inquiries, but Little Additional Tonnage Closed.

KANAWHA

Less coal was produced during the week ended June 11 than during the earlier part of the month. Comparatively few spot sales were made and there was a marked dullness in contract business. Prices were soft, mine run $2 and even less, slack was as low as $1.25 and even prepared sizes did not range more than $2.75@$3. No export business had developed and Lake shipments were slowing because of accumulation at the lower docks.

LOGAN AND THACKER

The Logan field continued its high rate of production throughout the week. Shipments continued at the rate of about 50,000 tons daily. But little tangible business had materialized and prices remained stationary. However, inquiries were becoming more numerous.

Williamson production was not over half of potential capacity; however, with the restoration of peace for the time being at least, the output increased to 93,000 tons. There was a fair market for the coal although little of it was moving on a spot basis.

VIRGINIA

The output remained at the rate of about 50 per cent of potential capacity. Operations were limited to the larger tipple mines. Spot sales were few and prices were flabby.

NORTHEASTERN KENTUCKY

With no general demand for coal, production was on the decrease and prices were weaker. Lake shipments were dwindling and there was no demand for steam coal whatsoever. Prices ranged $3.50@$4 on domestic, mine run $2@$2.50 and slack sold off around $1@$1.25.

LOW-VOLATILE FIELDS

Market Conditions Not So Satisfactory — Lake and Exports Are Weaker — Prices Soften with Lower Demands — Production Slumps.

NEW RIVER AND THE GULF

Market conditions for New River coal were not so satisfactory during the week ended June 11. The coal mined was moving principally to Tide although there was a pronounced lessening of demand at the seaboard. Congestion at the Lake front was preventing a quick dispatch and lowered shipments resulted. Prevailing conditions were reflected in lower prices.

Lack of markets still prevented a few companies in the Gulf region from resuming operations. Some coal was being sold but the spot market was rather listless, especially as to Tide demand.

POCAHONTAS AND TUG RIVER

Pocahontas production hovered around 250,000 tons, there being a loss of about 180,000 tons due to "no markets." Lack of spot demand kept the output about 100,000 tons less than it had been during a large part of May. Tidewater was claiming the bulk of the output but there was a fairly good western domestic market. Slack prices ranged $2.50@$3 and mine run around $3. Prepared sizes had weakened somewhat and ranged around $5.

Tug River production was slightly off, but the effect of a dwindling market was not so severe as in the Pocahontas region. The field was doing better than 50 per cent of potential capacity. Prices ranged about the same as in the Pocahontas region.

West

UTAH

Low Rate of Production—Storage Program Being Urged.

The situation in Utah remains about the same with practically no coal being purchased for storage purposes. Mines are working from 20 to 25 per cent time and further reduction would be completely demoralizing.

Secretary Banning of the Utah State Public Utilities Commission, is urging the public to store coal for winter use. He advises householders wherever possible to strive to reduce the danger of a coal famine by placing storage orders. Later in the season equipment will not be so plentiful. It will then not be a question of what it will cost for coal, but whether it can be obtained. An increase in the coal movement at this time will give work to men who mine, transport and deliver the product, and to that extent it will alleviate the present labor situation.

MINE And COMPANY NEWS

ALABAMA

Pending arrival of the line of the Central of Georgia, the **County Coal Co.**, which has opened new coal mines at Grant's Mill in the Cahaba basin, near Leeds, is moving coal from the mines in trucks. Meanwhile the railroad is speeding the work of construction and will soon have penetrated this basin. Not only the County Coal company's properties will be tapped, but the new line will also reach virgin coal properties of the DeBardeleben and Alabama Fuel and Iron companies, which will be extensively developed.

ILLINOIS

A coal deed recording sale of certain coal rights in Hillsboro township by Arthur Kinkead to the **Indiana and Illinois Coal Corporation** has been filed in Montgomery County, the transfer giving the Taylor Springs mine a greater area for operations.

The Colfax mine will be reopened soon. The workmen overhauling it have found the shaft to be in good condition and none of the cribbing has been broken or so badly decayed as to need replacement except for the first twenty feet. The steam pump at the 165-ft. level was put into operation after a little cleaning and it is now pumping water, just as it was used twenty years ago. The mine is 400 ft. deep.

INDIANA

C. B. Meredith, F. C. Jones and R. C. Jones are the directors of a new coal mining company recently organized in Terre Haute. The company will be known as the **J. & M. Coal & Mining Co.** and has a capital stock of $60,000.

The Star City Coal Mining Co., of Shelburn, has contracted for the installation of a new wooden tipple which will be fitted with Marcus screen and all loading facilities. The work will not interfere with the operation of the existing tipple during the construction period.

The Eureka Block Coal Co., of Pimento, recently contracted with the Roberts & Schaefer Co. for the installation of a wood tipple to be equipped with a Marcus screen and loading chutes.

KENTUCKY

Louisville retailers, in dealing with some of their best customers, have guaranteed prices against decline on prepared sizes, not touching steam coal, as steam is weak and it is not known whether the bottom has yet been reached. The weakness in steam should make for a higher prepared market, with the result that the retailers are not taking many chances. Another offer is a 25c. discount for cash within ten days. Retailers this year are also offering a like reduction from advertised prices, where the coal is dumped and does not have to be hand shoveled.

MINNESOTA

The Superior Coal & Dock Co. has let a contract for a new dock to be located on the Duluth side of the Duluth-Superior harbor. The dock will have a storage capacity of 600,000 tons and will have a loading bridge 365 ft. in length. The dock itself is to be 2,400 ft. long. The contract has been let to Whitney Bros. of Superior, and the bridge will be built by the Brown Hoist Co. of Cleveland. The total cost is estimated at between $600,000 and $700,000.

The Pursglove Coal & Dock Co. is a new corporation which will operate at the Duluth-Superior harbor. The new company has acquired a dock at Superior, equipped with efficient handling machinery, shaker screens and Manierre box car loaders. The company is now receiving coal at its dock. Roy O. Eastman, formerly sales agent of the Pittsburgh & Ashland Coal & Dock Co. has resigned his position to become vice-president and general manager of the Pursglove interests in the Northwest.

The M. A. Hanna Coal Co. has been awarded the contract for furnishing the water and light department of the town of Buhl with 9,000 tons of coal on its bid of $4 per ton for Kentucky screenings f.o.b. Duluth. Other bids were as follows: **Great Lakes Coal & Dock Co.**, Youghiogheny, $4.15; **Northern Coal & Dock Co.**, yard screenings, $4.50; **Northwestern Fuel Co.**, Millers Creek Kentucky screenings, $5, and the **Dower Lumber Co.** of Buhl, Youghiogheny, $4.10 and Kentucky screenings $4.25.

OHIO

George W. Black of Marion has purchased the **Progress Coal Co.** property, located near Nelsonville. The headquarters which have been in the Ferris Bldg., Columbus, will be moved to Marion. B. A. Weadlock was president of the company and will continue in that capacity for some time.

The Gem Coal Co., chartered recently with a capital of $10,000, has opened a retail yard at Columbus. W. E. Evans is treasurer and general manager; V. G. Miller, president, and C. E. Aumiller, vice-president and secretary. The yard was leased from the Columbus Builders' Supply Co.

The Carr's Fork Coal Co., Perry County, has been organized with a capital of $400,000.

The Lorain Coal & Dock Co., Columbus, has closed a deal for the purchase of 15,000 acres of virgin coal lands in Marshall and Ohio counties, W. Va., in the Panhandle part of the state. There is no railroad near the property at present although the Pennsylvania has a right of way. The property will not be developed for the present. The Lorain company operates large mines in Logan Co., W. Va., as well as in the eastern Ohio field.

Liens for $1,050 and $351, alleged to be due for services rendered as attorneys, were filed in the United States Court at Cincinnati by counsel for the **General Coal Co.** in its suit against the **Sloat Darragh Coal Co.**, of Hamilton, in which the General Coal Co. obtained a judgment for approximately $11,000. The attorneys declare that the company has failed to pay their bills which they have rendered.

PENNSYLVANIA

The Connellsville Hygrade Coal Co. and the **Clearwater Coal Co.**, of which C. W. Downs is general manager and sales agent, have opened offices in Connellsville.

Applications for the merging of thirty-seven light and power companies in Armstrong, Clarion and Butler counties with the parent organization, the **West Penn Power Co.**, have been approved by the Public Service Commission of Pennsylvania following hearings in Pittsburgh several weeks ago.

Seventy five members of the Johnstown Kiwanis club with a number of coal operators visited the plant of the **Penn Public Service Corporation** at Seward on June 9. This plant was erected at a cost of $5,000,000 and was much admired by the business men and operators.

A charter has been issued to the **Fuel Service Co.**, of Scranton, with a capital stock of $50,000. A. Markle, Jr., Hazleton, is treasurer and one of the incorporators, the others being Donald Markle, Scranton and Eckley, B. C. Markle, Hazleton. The shares of stock are $100 and each of the incorporators holds fifty shares.

A charter has been issued for the **James L. Sease Coal Co.**, of Philadelphia. It has a capital stock of $25,000, and its purpose is to mine, prepare, buy and sell coal and coke.

Reports are in circulation to the effect that when the Glen Alden Coal Co. formally takes over the coal holdings of the Delaware, Lackawanna & Western its headquarters will be located in Wilkes-Barre. It is also said that certain of the shops now located in Scranton will then be removed to Wilkes-Barre. Headquarters of the Lackawanna coal mining department have always been located in Scranton.

WISCONSIN

May was a good coal month at Ashland considering the number of boats, the dull season and the amount of coal deposited on the docks there. A total of 116,200 tons of which 93,600 tons were soft coal and 22,600 tons anthracite, were deposited on the docks. Sixteen vessels entered the harbor with an average cargo of 6,262 tons. Considering the fact that Ashland is not a hard-coal port the amount brought up during the month is considered a good record.

UTAH

As a result of a meeting held in Salt Lake City, tentative plans were discussed for the erection of a steam power plant in Carbon County at a cost of about $1,000,000. John H. Tonkin, F. H. Rolapp and F. A. Sweet were appointed a committee to go into the matter and to determine the feasibility of the plant and its construction. A member of the committee declared that coal producing companies will be able, if the plant is erected, to get their power for about half what it costs now. The plan will probably be to set aside an amount each month about equal to what is now paid for power, bond the plant and then take up the bonds monthly instead of paying the money into another company for power.

WEST VIRGINIA

S. H. Goodloe, Harry Scherr and C. P. Early will organize the **Wilhelmina Collieries Co.** to mine coal in the Williamson district. The capitalization of the company is to be $250,000.

Those interested in the **Upland Coal & Coke Co.**, the **Page Coal & Coke Co.**, and the **Crozier Coal & Coke Co.**, producing companies in the New River field, spent the first ten days of June in a special car on a visit to the properties. Every operation was carefully inspected. Those making the trip were, Mr. & Mrs. Louis R. Page, Mrs. Casper Hacker, Messrs. E. C. Page, L. R. Page, Jr., J. Marechal Brown, Harvey E. Wilson and J. J. Tierney.

BRITISH COLUMBIA

There is to be a conference of coal operators, dealers and consumers of British Columbia to consider the whole question of production, transportation and distribution with a view to deciding whether it is not possible to "cut" expenses and reduce the cost to the user. This is in line with a recommendation made by A. Henderson, who recently conducted an inquiry into the matter of coal costs in this province. The conference will take place at an early date and all the recommendations made by Commissioner Henderson and General R. G. E. Leckie, the mining engineer who acted as the former's technical counsel, will be given careful consideration.

Judgment has been given against the **Pacific Coast Coal Mines, Ltd.**, Vancouver Island, for $69,500 which amount is made up of wages due and unpaid to miners who had been in their employ. This company's mine, known as the Morden Mine, has been closed since Dec. 11. It is considered likely that, as soon as the financial affairs of the concern have been straightened out, such obligations as those indicated will be met and operations will be resumed.

Traffic News

In the complaint of the **Benton Coal Mining Co.** and the **Franklin County Mining Co.** an examiner recommends that the practices of the C. B. & Q. R.R., with respect to furnishing coal cars and transportation facilities to certain mines served by it under trackage or switching absorption arrangements with other roads while refusing to serve complainants' mines under similar arrangements did not give the road undue preference or subject complainants to undue prejudice or disadvantage.

Hearings in the matter of anthracite coal rates to stations in New York will be given by Interstate Commerce Commission Examiner Quevedo on June 27 at the Merchants' Association Rooms, 233 Broadway, New York.

An examiner recommends that the rate on coke from St. Paul to St. Louis be held to be reasonable and that the complaint of the **Mississippi Valley Iron Co.** be dismissed.

In the case of the **Nye Schneider Powder Co.** an examiner recommends that the rates on coal from points in Colorado, Wyoming, Kansas and Arkansas to Iowa and Nebraska be held to be reasonable.

At a meeting of the Kentucky Railroad Commission held in Frankfort there was a general readjustment of rates for intrastate business while rates were increased to Covington, Newport, Latonia and Louisville. These amounted to 15 to 32c. a ton in round figures. As an excuse for its action the commission declared that the old rates that obtained were to meet the lower river rates when there was active competition but since this was only of small importance now it was desired to have the coal freight rates adjusted so that all towns would be on the same footing. There were some sweeping reductions to some of the inland towns and cities.

A petition has been filed with the Utah State Public Utilities Commission by the **Spring Canyon, Peerless and Standard Coal Companies** against the Bamberger Electric Ry., the Bingham & Garfield, Los Angeles & Salt Lake, O. S. L., Salt Lake & Utah, S. P., U. P. Tooele Valley, Utah-Idaho Central, Utah Ry. and the Utah Terminal railroad companies to have rates fixed from the Utah Terminal road in Spring Canyon connecting with the other lines. The complaint sets forth that there are no through rates in effect from complainants' mines beyond the junction point of the Utah Terminal R.R. and the Utah R.R. Co.

The Canadian Board of Railway Commissioners recently announced a reduction in freight rates for coal transportation in the Prairie Provinces, to be effective for the summer months, to encourage the practice of purchasing winter supplies during the fine weather. The collieries of eastern British Columbia are speculating as to whether the reductions apply to them.

The Chaffee R.R. Co. has applied to the commission for authority to operate an existing line from Vindex, Md., to Chaffee, W. Va., where it connects with the Western Maryland. The road was constructed and operated by the Chaffee Coal Co. until May, 1920, when the Manor Coal Co. purchased the coal property. There are four companies now mining and shipping coal which depend upon this road to transport the coal to the connection with the Western Maryland.

Personals

The South Manchurian Ry. had a representative in the Twin Cities recently and engaged **Dean W. R. Appleby**, of the Minnesota State University college of mines and **W. R. Emmons**, of the geology department, to go to Manchuria at once for consultation as to methods of making coal production more profitable.

J. G. Hood, secretary of the West Virginia Coal Co., with headquarters at Richmond, to go to Manchuria at once for conpart of June both at Charleston and Huntington, W. Va.

A recent visitor in Michigan markets was **Joseph Maloney**, president of the American Export and Inland Coal Corporation, Huntington, W. Va.

The Pittsburgh & Ashland Coal & Dock Co., of Minneapolis, announces the election of **P. F. Herrly**, heretofore treasurer, to the position of treasurer and general manager and of **F. O. De Groff**, formerly manager of retail sales, to the position of manager of sales, succeeding R. U. Eastman, resigned. **A. B. Francis** succeeds Mr. De Groff as retail manager of sales. The company has disposed of its dock at Superior and has taken a larger dock in Duluth, which with its new dock in Ashland enables the company to handle a larger business.

Joseph Revere, who for the past twenty years has been purchasing agent for the Dominion Coal Co., has retired from active service. Following the announcement of the retirement of Mr. Revere, officials of the company stated that in future all purchasing done for the Dominion company would be effected through the purchasing department of the Steel Co., under the supervision of **D. S. Hines**, at present acting purchasing agent for the corporation.

Robert Buka, sales manager, and **P. W. Sherman**, lake forwarder, both of the Valley Camp Coal Co., Cleveland, are making an extended tour of the Northwest.

George Balker, formerly with the National Coal & Trading Co., has opened an office in the Kirby Bldg., Cleveland, for the Pittsburgh & Erie Coal Co.

George C. Schlehr, formerly with the Lake Erie Coal Co., has become associated with the Glens Run Coal Co., Kirby Bldg., Cleveland.

C. E. Maurer, president of the Glens Run Coal Co., delivered an address June 16, at Cedar Point, before the annual convention of the Michigan-Ohio-Indiana Coal Association.

A. H. Fay has been appointed acting chief of the natural resources subdivision of the income tax unit of the Bureau of Internal Revenue. Mr. Fay is a mining engineer who, for many years, had charge of the statistical division of the Bureau of Mines.

D. H. Harrington, supervising mining engineer of the U. S. Bureau of Mines, with headquarters at Denver, is in Washington conferring with the chief mining engineer of the Bureau.

W. C. Mendenhall, the head of the Land Classification Board of the U. S. Geological Survey, has been designated by the Secretary of the Interior as his agent in administering the naval oil reserves. These reserves have been transferred by an executive order from the Department of the Navy to that of the Interior.

Association Activities

National Coal Association

The Advisory Committee to the President of the Association appointed June 1, 1921, is composed of the following:

W. K. Field, president, Pittsburgh Coal Co., Pittsburgh.

H. N. Taylor, vice-president, Central Coal & Coke Co., Kansas City, Mo.

D. B. Wentz, president, Stonega Coke & Coal Co., Land Title Bldg., Philadelphia.

Ira Clemens, president, Clemens Coal Co., Pittsburg, Kan.

A. M. Ogle, president, Vandalia Coal Co., Terre Haute, Ind.

Erskine Ramsay, first vice-president, Pratt Consolidated Coal Co., Birmingham, Ala.

J. J. Tierney, vice-president, Crozer Pocahontas Coal Co., Philadelphia.

J. D. A. Morrow, vice-president, National Coal Association, Washington.

W. B. Reed, secretary, National Coal Association, Washington.

Northeast Kentucky Coal Association

A strenuous effort is being made by the officials of the association to secure an adjustment of the Chesapeake & Ohio freight rates to Tidewater from the Big Sandy Division of the road, so that the rate will put the northeast Kentucky producers on the same freight basis as southern West Virginia operators. Northeast Kentucky producers are hopeful that the existing differential may be wiped out, believing that with a better rate there will be a material increase in the shipment of coal to seaboard.

Logan Operators' Association

Members of the Logan Operators' Association and of other operators' associations in southern West Virginia held a conference with representatives of the Huntington Chamber of Commerce early in June, at which Sept. 22 was agreed upon as the date for the coal and industrial exposition which is to be held in connection with the annual style show of Huntington merchants. Nearly all the operators' associations in the state have assured those arranging for the exhibition their fullest co-operation and have promised to interest mine owners in exhibiting new devices for the mining of coal.

Central Pennsylvania Coal Producers' Association

At a recent meeting of the association the following executive board was selected: T. H. Watkins, R. H. Sommerville, Woodland Derringer, F. B. Kerr, W. R. Kerr, W. R. Craig, H. J. Meehan, J. S. Sommerville, M. J. Bracken, Richard Peale, G. Dawson Coleman, Charles A. Owen, T. Lawry Eyer, A. R. Hamilton, James B. Neale, G. Webb Shillingford, I. A. Boucher, George H. Francis, J. William Wetter, W. S. Blaisdell, J. H. Allport and Thomas V. Gould. The board organized by electing these officers: President, H. J. Meehan; Vice-President, G. Webb Shillingford; Secrtary, Charles O'Neill; Statistician, W. A. Jones.

Central Coal Association

At the meeting of the association held in Altoona on June 10, the following members of the executive board were selected: G. Dawson Coleman, Charles A. Owen, James B. Neale, A. R. Hamilton, R. H. Sommerville, Samuel T. Brown, T. H. Watkins, H. J. Meehan, J. S. Sommerville, F. B. Kerr, G. Webb Shillingford, I. A. Boucher, J. William Wetter, James H. Allport and Thomas V. Gould. Following the meeting, the executive board organized by electing these officers: President, J. S. Sommerville: Vice-President, G. Dawson Coleman; Secretary and Commissioner, Charles O'Neill.

Obituary

George S. Clemens, for many years with the Philadelphia & Reading Coal & Iron Co., died in Philadelphia recently. He was almost 73 years old. Soon after the Civil War he was appointed resident mining engineer in the Minersville district for the Reading.

William B. Cogswell, founder of the Solvay process and for many years a commanding figure in mining and engineering circles, died recently at his home in New York City. He was a native of Oswego, N. Y.

An appraisal of the estate of the late **John F. Schmadeke**, a Brooklyn coal dealer, shows that he left $1,280,569. The bulk of this is distributed equally among his four children. He left $19,200 to the House of St. Giles the Cripple and small shares of stock in his coal company to a number of his old employees.

Coming Meetings

The Huntington Coal and Industrial Exposition will be held in the Chamber of Commerce Building, Huntington, W. Va., Sept. 19 to 24 incl. Chairman of committee, Thomas A. Palmer, Huntington Chamber of Commerce, Huntington.

American Institute of Mining and Metallurgical Engineers will meet at Wilkes-Barre, Pa., Sept. 12 to 17. Secretary, Bradley Stoughton, 29 West 39th St., New York City.

National Association of Cost Accountants will hold its annual convention at Cleveland, Ohio, Sept. 14, 15 and 16. Secretary, S. C. McLeod, 130 West 42d St., New York.

Rocky Mountain Coal Mining Institute will hold its summer meeting beginning June 28 at Salt Lake City, Utah. Secretary, F. W. Whiteside, Denver, Col.

Mine Inspectors' Institute of America will hold its twelfth annual meeting at Charleston, W. Va., July 12 to 15. Secretary, J. W. Paul, Bureau of Mines, Pittsburgh, Pa.

Illinois and Wisconsin Coal Dealers' Association will meet at Chicago, Ill., July 13 and 14.

The American Mining Congress and National Exposition of Mines and Mining Equipment. The twenty-fourth annual convention on Oct. 17 to 22 at the Coliseum, Chicago, Ill. Assistant secretary, John T. Burns, Congress Hotel, Chicago, Ill.